The Cultural Reproduction of Architecture: Examining the Roles of Cultural Capital and Organizational Habitus in the Socialization of Architectural Education

by

Jennifer L. Chamberlin

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Architecture)
in The University of Michigan
2010

Doctoral Committee:

Professor Linda N. Groat, Chair
Associate Professor Kelly M. Askew
Associate Professor Malcolm McCullough
Adjunct Associate Professor David L. Schoem

DEDICATION

To Dave and Calvin

ACKNOWLEDGMENTS

First and foremost, I would like to thank my advisor, Linda Groat, for her insight, support and guidance throughout the last six years. Her constructive criticisms and ability to "connect the dots" have been invaluable in the development of this work. I also would like to thank all other members of my committee, Malcolm McCullough, Kelly Askew and David Schoem, for their enthusiasm, curiosity and eagerness to push me and this research, each making a unique contribution in this process.

I am especially grateful to all of the architecture students and faculty at the two case study sites who agreed to participate in this research and shared their personal experiences with me. Their cooperation and enthusiasm in participating made this research possible.

Special thanks to Joe and Ling Ling at CSCAR, who helped tremendously with structuring data analysis, as well as my friends and colleagues at Taubman College of Architecture & Urban Planning who were always willing to listen and to offer their encouragement.

Finally, my parents and a multitude of friends, who have consistently supported and encouraged me through this long journey, deserve special thanks. Words cannot express my gratitude to my husband, Dave and son, Calvin. This work is dedicated to you both.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

Chapter 1

Introduction

Research Topic

This dissertation research investigates the extent to which inequalities exist in the cultural reproduction of architectural education. It can be argued that all systems of higher education have a socialization process at work (e.g., Karabel & Halsey, 1977); this research will focus specifically on the socialization process within architectural education, using the work of the French sociologist and anthropologist, Pierre Bourdieu, as a lens of analysis. Students achieve varying levels of success in formal education, and this work researches the extent to which such variations are systematically related to a student's level of *cultural capital* or *habitus*, which either fosters or hinders his/her ability to acclimate to the subculture of architecture, using two U.S. architecture programs as case study sites.

Sociologists have addressed the issue of inequalities and socialization in other professional programs of higher education such as law and medicine, (e.g., Granfield, 1991; Coombs, 1978), but this subject has been relatively overlooked in architecture. One self-proclaimed "architectural sociologist," Garry Stevens (1995; 1998) has tackled the issue of socialization in architectural education by employing a Bourdieuian framework, but has done so by primarily citing broad sociological data from Australia and the U.K. to support his position that architectural education serves to "privilege the privileged." In contrast, the present research uses a case study approach, with quantitative and qualitative measures to document the experiences of graduating architecture students as *individuals* in a system preparing them for the discipline of architecture. Although theoretically compelling, Stevens' work has approached the issue of socialization in architectural education as a simple dichotomy of high vs. low cultural capital, claiming those students with high amounts of cultural capital are likely to reap

the benefits of being more prepared for and more at ease in the realm of architectural education. Building upon Stevens' work, this dissertation will present evidence of a more complex situation at the case study sites, one in which students cannot be simply categorized into either high or low levels of cultural capital.

Rationale for Research

There are two primary concerns motivating this research on socialization in architectural education: (1) the perpetuation of a lack of diversity in terms of class, race and gender in the larger architecture discipline and (2) the broader issue of class-based differences in access and equity in systems of U.S. higher education. While both of these issues may have separately received attention among certain academic circles (either architecture *or* sociology/anthropology of education, with the latter having more effectively reached out to broader non-academic audiences), previous research has generally not addressed the connection between the two. The present work aims to weave these bodies of research together, drawing on the strengths of both with the intent to encourage all relevant participants in architectural education (students, faculty and administrators) to be self-critical and question the implicit values inherent in their system of education.

Lack of Diversity in Architecture

The discipline of architecture has had a long-standing reputation of being a predominantly white, upper class, male profession (Anthony, 2002; Dixon, 1994; Dutton, ed., 1991; Groat & Ahrentzen, 1996). Most recent statistics from the American Institute of Architects (AIA) collected in 2004 at first lead one to believe that schools of architecture have made great progress, at least in the realm of attracting women.[1] The AIA estimates that 40-50% of graduates of architecture schools in the United States are female. However, the numbers steadily decline as women enter (or perhaps more accurately, *do not* enter) the profession. The AIA estimates that women comprise 33% of associate AIA membership (includes students and interns), 11% of licensed AIA membership and 20% of all registered architects. Minorities (defined and grouped as

[1] All AIA statistics obtained from: http://aia.org/aiaucmp/groups/aia/documents/pdf/aias077643.pdf (Retrieved 08.28.10)

"people of color") are represented even less in the profession, in that they constitute only 19% of associate AIA members, 6% of AIA licensed members and 11% of all registered architects. As one program director of a U.S. school of architecture said, "Almost any place in the world is more diverse than an architecture school.[2]"

However, perhaps such lack of diversity is not specific to architecture, but rather is endemic to other professions as well. To address this possibility, data from the 2009 Bureau of Labor Statistics on gender and racial composition for the professions of architecture, law and medicine are presented below in Table 1.1[3]. To understand these figures within the overall context, the composition of the total U.S. workforce is also included. Law and medicine have both attracted and retained a larger percentage of both women and African-Americans than architecture has. Also, both law and medicine have significantly larger numbers of total practitioners than architecture, creating more opportunity for traditionally underrepresented minority groups to have a greater presence. For example, translating percentages of Hispanics in architecture and law into numbers, there are 14,076 practicing Hispanic architects and 29,204 practicing Hispanic attorneys. Therefore, there is greater potential for this particular minority group to gain "visibility" in law than there is for them in architecture. Such visibility is crucial in that it serves to encourage future generations to pursue these professions and to dismantle barriers that were once insurmountable to entire groups of the population.

	Total employed (in thousands)	Women (% of total)	African-American (% of total)	Asian (% of total)	Hispanic, Latino (%of total)
Architects	204	25.3	2.5	4.8	6.9
Lawyers	1043	32.4	4.7	4.1	2.8
Physicians	914	32.2	5.7	16.4	6.3
Total Workforce	139,877	47.3	10.7	4.7	14.0

Table 1.1: 2009 U.S. Bureau of Labor Statistics comparing demographics of architecture, law and medicine

[2] "Building in color: UC tries to find more black students who want to be architects" published online, http://cincinnati.bizjournals.com/cincinnati/stories/2004/02/02/story5.html (Retrieved 08.28.10)
[3] Source: http://www.bls.gov/cps/cpsaat11.pdf (Retrieved 08.28.10)

Uncovering Inequalities in Higher Education

Research on inequalities in higher education, based on race, gender, and class has stepped outside the confines of academia to reach the general public in recent years. *Wall Street Journal* bureau chief, Daniel Golden authored a book on the advantage that the financially privileged hold in gaining admission to America's most elite institutions, in *The Price of Admission* (2006). Another example is that of Peter Schmidt, who is currently a senior writer at *The Chronicle for Higher Education*, and recently published *Color and Money* (2007) about existing inequalities in admissions to college for racial minorities and students of a lower socioeconomic status. The issue of unfair advantage for the financially privileged in higher education has been the subject of much research in the sociology and education literature for over 30 years, but not until recently has it received the attention it deserves in more mainstream publications in the U.S.

This larger theme of identifying inequalities in higher education is embedded within the present research, questioning the perpetuation of privilege within higher education, i.e., the substantial numbers of predominantly white, upper class students at institutions of high prestige and similarly large proportions of racial minorities and lower socioeconomic status students at community colleges and less prestigious universities and colleges (Karabel & Astin, 1975; Kingston & Lewis, 1990; McDonough, 1997). One researcher described this condition as, "…the academically and socioeconomically "rich" become richer while the academically and socioeconomically "poor" become poorer" (Hearn, 1984, 22). Although this research will focus specifically on programs of architecture, it is important to note the context within which these programs are operating. The two universities that have been selected for data collection represent different points on a continuum of prestige, with School A being relatively high and School B being relatively low, and they do indeed follow the patterns described above when student demographics are examined[4]. For example, 71% of the entire student body including all disciplines at School A are white, 5% are Hispanic and 7% are African-American; in contrast, at School B, 51% are white, 35% are Hispanic and 3% are

[4] The names of the two case study sites will not be revealed, but rather will be referred to as *School A* and *School B* throughout this dissertation.

African-American.[5] In addition, there is a large difference in the percentage of students receiving Pell grants, with only 12% at School A compared to 28% at School B[6].

Overview of Research

Using a Bourdieuian lens, this dissertation research specifically questions the extent to which two factors shape a student's socialization in architectural education: a student's level of *cultural capital* and the *organizational habitus* of the student's school of architecture (that is situated within a particular university), which also include elements of the *hidden curriculum* in architectural education. The first two concepts originate from Bourdieu's theory of cultural reproduction; the third concept of hidden curriculum is from pedagogical theory but has been effectively adapted by architectural researchers (Dutton, 1991; Groat & Ahrentzen, 1996). These three concepts as they relate to a study of socialization in architectural education will be outlined below.

Cultural Capital and Habitus

Cultural capital is broadly defined as a representation of one's cultural value, and includes a variety of traits and behaviors, such as posture, dress, language, preferences, academic credentials, and social networks that ultimately describe who we are and where we are located in the greater social strata (Bourdieu, 1977a). Habitus is an expansion on the notion of cultural capital, with Bourdieu (1977b) defining it as a system of "durable, transposable dispositions, structured structures…[and as] principles which generate and organize practices" (72). Essentially, habitus refers to all of the dispositions and attitudes one possesses, that are both learned, and in a sense, inherited from one's upbringing; one's habitus functions as a guide through life, informing decisions, behaviors, and habits (Reed-Danahay, 2005). Bourdieu (1977a) conceptualized habitus as a strong and stable system, yet still flexible enough to shift and adapt given new experiences throughout one's lifetime. Another broad descriptor often used to approximate habitus is that of "worldview" (Dobbin, 2008: 58).

Bourdieu's work is premised on the notion that systems of cultural privilege exist and reproduce themselves without anyone's conscious effort or even awareness. In order

[5] Source: US News and World Report, College Rankings 2007 edition.
[6] Source: Financial aid departments of School A and School B

to fully understand the pervasiveness and depth of such reproduction in the greater society, Bourdieu argues that the norms and practices of educational institutions must first be examined, as he believed that those institutions held the most power in perpetuating one's level of status and privilege (Reed-Danahay, 2005; Swartz, 1997). Schools "misrecognize" elevated levels of cultural capital as "natural" talent and in turn reward such students for simply being cultured and having a privileged family background (Bourdieu, 1996). Bourdieu referred to the idea of "natural" talent as "ease" and discussed it as follows:

> what we call ease is the privilege of those who, having imperceptibly acquired their culture through a gradual familiarization in the bosom of the family, have academic culture as their native culture and can maintain a familiar rapport with it that implies the unconsciousness of its acquisition (1996, 21).

Stevens (1995; 1998) has effectively appropriated Bourdieu's concepts of cultural capital and habitus in the realm of architectural education, seeking to dispel the myth of "creative genius" by highlighting the advantages afforded to students with high cultural capital in this particular system of education. He argued that the subjective nature of architectural education, unlike law, medicine or engineering, "requires not only *knowing* something, but *being* something" (1995, 112). Furthermore, the unique features of architectural education, e.g., the studio system, extensive one-on-one interaction between students and faculty and the reliance on public presentations for student evaluations, continually offer opportunities for students to put themselves, or more aptly in Bourdieuian terms, their habiti on display.

Organizational Habitus

Organizational habitus is a concept that has been adapted from the social reproduction theory of Pierre Bourdieu and refers to "the class-based dispositions, perceptions, and appreciations transmitted to individuals in a common organizational culture" (Horvat & Antonio, 1999:320). McDonough (1997) was one of the first researchers of higher education to employ the concept of organizational habitus in research on the college selection process. In addition to considering a student's level of cultural capital and habitus, she also acknowledged the role that the students' high

schools, which varied in resources and prestige, played in shaping a student's college selection. Accounting for a school's organizational habitus allows for a more comprehensive understanding of how schools contribute to reproducing social inequalities.

The present research is particularly interested in the interaction between a student's habitus and the organizational habitus of its architecture school. It is speculated that there will be varying levels of accordance between a student's habitus and his/her school's organizational habitus, thereby shaping, either favorably or unfavorably, their social and academic experiences. One of the criteria for case study site selection in this research was to have contrasting organizational habiti; Chapter 4 will discuss how organizational habitus was operationalized for this research, contrasting the two case study sites in its analysis.

Hidden Curriculum

The term "hidden curriculum" originated in pedagogical theory, with Philip Jackson generally credited with coining it in his 1968 work *Life in Classrooms* (Margolis, 2001). Jackson's research focused on grade schools and he found that there were certain values, traits, and behaviors of students for which they were rewarded. The behaviors that the rewarded children exhibited was not related to the formal curriculum, (such behaviors included sitting quietly, staying busy, and having a neat appearance) but nevertheless, were understood to be mandatory to succeed in school. Jackson concluded that the encouragement and promotion of such behaviors on the part of schools and teachers ultimately served to promote conformity in the children.

Dutton (1991) and Groat & Ahrentzen (1996) applied the concept of a hidden curriculum in their studies of architectural education, identifying a number of key ways in which it manifests in this particular system of education. Such aspects of a hidden curriculum included hierarchy, competition, social dynamics and curricular values and expectations. The survey and interview instruments employed in the present research address these issues to identify the extent to which these elements of the hidden curriculum are operating at each case study site.

Chapter Overview

This chapter introduced the research question of *To what extent do the factors of a student's level of cultural capital and an architecture school's organizational habitus which include elements of the hidden curriculum shape a student's socialization in architectural education?* It presented the rationale for and importance of conducting this research and also outlined the key Bourdieuian concepts that comprise the theoretical framework for this study. In considering this research question, other key defining characteristics of students, such as gender, program type within an architecture school (undergraduate, 2 year graduate, 3.5 year graduate), and race and ethnicity will also be addressed as variables of interest in the analyses.

Chapter 2 presents a comprehensive literature review on the two bodies of previous research that are pertinent to this work: research on architectural education and research from the sociology of education. Both sets of literature informed the larger research design as well as the particular survey and interview instruments used in this dissertation. Chapter 3 details the research methods employed to conduct this study: a case study strategy with both quantitative and qualitative measures of graduating architecture students' experiences at two U.S. schools of architecture. Criteria for selection of these particular case study sites will be reviewed as well as an argument for using a case study research strategy.

In Chapter 4, the two case study sites are introduced and described in terms of their organizational habiti. Demographic data of the universities within which these two architecture schools are situated will be presented to account for the larger context of each program. Quantitative and qualitative data will be integrated in the analysis, as well as email correspondence among students, faculty and staff to paint a rich picture of each school's habitus. Quantitative data include student survey responses to questions of cultural capital, means of financial support and reasons for attending their particular university. Qualitative data include interviews with both architecture students and faculty as support for the notion of School A having relatively large amounts of cultural capital and School B having relatively small amounts.

For each of the four analyses chapters (5 through 8), student survey responses are compared, with students grouped according to one of four variables of interest: cultural

capital, gender (within groups defined by cultural capital), program type, race and ethnicity. The statistical procedure of cluster analysis was used to define groups according to levels of cultural capital, which will be fully outlined in Chapter 5. Other statistical analyses presented in Chapters 5 through 8 include chi-square, one-way ANOVAs and multi-dimensional scaling (MDS). Qualitative data from interviews with architecture faculty and students are interwoven as appropriate, serving as a secondary source of evidence to support the findings from the quantitative analyses.

The final two chapters, 9 and 10, are both summary chapters with two different purposes. Chapter 9 serves as a summary of all data analysis from Chapters 5-8, highlighting the key findings that emerged among groups in the various analyses, drawing connections among the results of the previous five chapters. Following up on this summary, Chapter 10 elaborates on these findings by revisiting the initial research question and structuring the discussion in terms of the three initial factors of interest: students' cultural capital, organizational habitus and elements of the hidden curriculum. The limitations of this study as well as the implications of this research will be outlined.

Chapter 2

Literature Review

Introduction

There are two bodies of literature that are of interest for the present research: one dedicated to research in the realm of architectural education and one dedicated to the subject of sociology of education research. Both of these major subject areas will be further divided into three sections given the focus of the research. The three strands within the topic of research on architectural education to be addressed in this chapter are (1) Research that has evaluated programs of architecture in the United States, with consideration given to faculty, student and alumni perceptions of architectural education (2) Research related to issues of the hidden curriculum, specifically in architectural education and (3) Research that has applied Bourdieu's theories of social reproduction specifically to architectural education. Within the sociology of education literature, the three areas of interest are (1) How a student's level of cultural capital impacts his/her educational outcomes, (2) The interaction of a teacher's habitus with a student's habitus in shaping students' educational experiences and (3) How a student's habitus ultimately affects their college destination.

Architectural Education

This section of the paper will focus specifically on research that has been conducted on architectural education, regarding who is attracted to this area of study, how students change through their education, and how architectural education is defined. Research on architectural education takes many forms, such as quantitative and qualitative analyses, personal accounts, theorizing for the future, and broad demographic studies. It is my attempt to represent the breadth and variety of existing literature on the complexities of architectural education in this section. To begin, a review of research on architectural programs will be covered, followed by a review of research that specifically

deals with issues of the hidden curriculum in architectural education, and concluding with a review of research in architecture that employs Bourdieu's theories.

Evaluation of Architecture Programs, Students and Alumni

The first officially commissioned and documented study to be completed on architectural education was by Bosworth & Jones from 1929-1932 (Porter & Kilbridge, 1981). At the beginning of the 20th century, there was a sudden rise in the number of universities offering an architectural curriculum, but an agreed-upon standard for architectural education had not yet been established. Prior to 1900, there were 15 schools in the U.S. and Canada with architectural courses, leading to a degree; by the time of the commissioned ACSA study in 1929 there were 52. The purpose for this study was to document the curricula, demographics of students, and to identify the complexities of this fairly recent introduction of architectural curricula into the universities.

Much of Bosworth & Jones (1932) concentrates on the focus of a particular architectural curriculum being either "technical" or "design-based", and the associations that each carries. For example, they discussed an "inferiority complex" that troubled those students who were delegated to the technical emphasis, in that, "the students who have "trouble" with design are shunted off into the structural option"(80). When the work of Garry Stevens (1998) is discussed, this notion of a hierarchy in architecture schools, with design at the apex and structures/technology on the bottom rung, will be revisited. Bosworth & Jones presented a compelling counterargument to this dichotomous conception of architectural education as either "design" or "technical", in their discussion of an introductory design assignment from Pratt Institute. This assignment for the beginner student was to design only a small part of a building (e.g., a window, a door), but to fully detail it with information that would be needed for construction, or as the authors describe it, "all of those things which many of us are apt to think of as being the dry, uninteresting drudgery of practice"(46). However, they are pleasantly surprised by how such a level of detail actually complemented the students' drawings and that such an exercise introduced students to the technical realities of architecture, and successfully so, as it was embedded in a design assignment. Their

original words powerfully convey the importance and worthiness of such an exercise for an architecture student:

> All the detail, instead of hampering him [*sic*], seemed to make the design problem more real to him. The flashings were properly installed from the practical viewpoint and delightfully proportioned so as to be an integral part of the design. It was seemingly a case of the student picking up practical knowledge without realizing that it could be considered stupid; of acquiring that knowledge as a by-product to his exercises in design. *Nobody had told him this sort of thing was stupid, so he took it for granted that it was interesting*,[italics added]- it was, in fact, a vital part of architecture. (47)

In their broad analysis of architecture schools across the U.S. and Canada, Bosworth & Jones (1932) were astutely aware of the power that curricula had in shaping the values and preferences of its students. Other research by Spreckelmeyer et al (1984), Wilson (1990), Dutton (ed, 1990), and Groat & Ahrentzen (1996) has further examined the influence of architecture schooling, and a discussion of their work will follow. First, there is another comprehensive evaluation of architectural education in the U.S., conducted by Boyer & Mitgang (1996) to be discussed.

Boyer & Mitgang (1996) focused on fifteen accredited schools of architecture throughout the U.S. that were specifically selected to represent a variety of programs, i.e., schools in urban centers, small towns, public/private universities and in different parts of the country. They interviewed students, faculty members and deans of these schools, to identify the challenges and possibilities that are specific to architectural education. While the authors most likely strove for objectivity in their evaluations of the architectural educational system, an enthusiastic tone regarding this model of education comes across to the reader.

In her analysis of Boyer & Mitgang, Ruedi (1998a) came to similar conclusions and described the report as “an exercise in architectural diplomacy” (149). While she praised the report for raising pertinent, complex issues in architectural education that needed to be addressed, she also expressed disappointment at how conservatively the authors handled the issues. She wrote:

> The evenhandedness of its writing exudes patrician grace. It preaches stability and conciliation, evolution rather than revolution. No particular organization or group is attacked. Criticisms are veiled…they are framed as questions rather than statements (149).

Although he was not necessarily referring to the work of Boyer & Mitgang, Stevens (1998) discussed the difficulties outside researchers sometimes have being objective when the discipline of architecture is their subject matter. Specifically, he found the attitudes that psychologists held in conducting research with architects to "vary from the disingenuously uncritical to the positively fawning" (10). Stevens argued that such researchers neglected the confounding social variables that inevitably affect a member of the discipline and instead focus on a quest for individual creative genius, which contributes little to the larger body of research.

Although Bosworth & Jones (1932) were researching architectural education from within the system as opposed to Boyer & Mitgang, their writing also subtly expressed their high regard for the dedicated, hard-working nature of the architecture student and the system of education that trained them. Except for a few dated references (and the complete omission of women), the following description that Bosworth & Jones gave of the typical architecture student, sounds very much like what Boyer & Mitgang encountered as well, over sixty years later:

> …this student is conceded by outside opinion to be slightly crazy. His [*sic*] ways and habits are hard to understand. He goes back to his drafting room at night, he makes an infernal racket when he works, he rather enjoys having a victrola or radio blaring forth ragtime or "Amos and Andy" when he attempts to concentrate…All this is true of the architectural student in not merely one school or a small group of schools. It is true of him in virtually every school in Canada and the United States – and for that matter in Paris or London. (1932, 108)

Regardless of its sometimes admiring tone, the Boyer & Mitgang report does recognize and describe quite clearly a number of problems that plagued architectural education, e.g., lack of diversity in faculty and students, excessive physical and mental stresses on students, disconnection of architecture programs from the rest of the university, and criticism from practitioners that students are not prepared for practice.

They proposed the following seven goals for architectural education to successfully renew itself: recognize its public responsibility, maintain a variety of program emphases, clarify the standards for accreditation, develop a more liberal and flexible curriculum, create a caring climate for learning, strengthen the connection between educators and practitioners, and instill a civic duty in its students.

Soon after the Boyer & Mitgang report was released, Groat & Ahrentzen (1997) published their research on women faculty members of architecture and came to similar conclusions and recommendations for architectural education as Boyer & Mitgang. Groat & Ahrentzen (1997) hypothesized that architectural education was under pressure to re-evaluate its structure and goals, in order to accommodate changes within the architectural profession and to address the purpose and effectiveness of itself in an academic setting. Based on over forty interviews with female architecture faculty, Groat & Ahrentzen asserted that female faculty would be particularly well suited to leading and advancing the needed changes in architectural education. There were a number of themes that repeatedly arose in their interviews with these women, such as recommendations for a revision of the studio system of teaching, and an encouragement for interdisciplinary studies and collaboration, similar to the findings from Boyer & Mitgang (1996).

Another point of discussion from both papers is the need that architectural education has for a more liberal curriculum. It is often assumed that the study of architecture must be the epitome of a well-rounded liberal education, as it does incorporate study of a wide range of fields, such as history, the arts, and science; however, if the quality of these studies were to be evaluated, it would be apparent that such studies are often cursory and superficial, "taking a back seat" to architecture. One faculty member interviewed by Boyer & Mitgang stated it quite plainly: "Most of our students know little history, philosophy, literature, Western and non-Western traditions, and see general education courses as necessary evils to be forgotten as soon as completed" (78)[7].

Both Boyer & Mitgang and Groat & Ahrentzen stressed the need for architectural educators to be aware of this deficit in their programs and realize the consequences of

[7] Similarly, in the present research, one School B student wrote in response to the open-ended survey question *Please describe your program's greatest weaknesses*: "Our liberal arts course requirements are parasitic."

such a restricted curriculum, i.e., producing graduates who cannot clearly make an argument (in either written or spoken form), and more significantly, producing graduates who disregard the value of a liberal education.

There have been others who have contributed support to the claims made above regarding the limiting nature of an education in architecture in their studies. David Clarke (1994) examined the required and elective courses that architecture students take to earn their first professional degree (FPD) in architecture. Clarke argued that since architecture defines itself as a profession, then it should be expected to follow in the tradition of the classic professions of law and medicine, in that students earn a broad liberal arts education prior to professional education. Because, as Clarke stated, "certainly there is little attempt to do it at the professional schools for these fields; their curricula are technical and lore-filled to the virtual exclusion of all else" (6).

Clarke critically analyzed a total representative sample of thirty student transcripts from six accredited architecture schools in the U.S. Using a concept from economics, he categorized courses to be either "investment spending" or "consumption spending." Clarke offered a unique method for producing empirical data that support two ideas: one, there is a lack of broadly applicable liberal arts courses taken by architecture students [in accordance with Boyer & Mitgang (1996) and Groat & Ahrentzen (1997)], and two, there is a tremendous amount of variety among U.S. architecture programs in the courses necessary to complete a FPD. Given that this variation among architecture curricula exists, what impact does that have on the graduates that universities are producing? The next section of this paper will address this question, reviewing the work of Spreckelmeyer, Domer & Carswell (1985), Wilson & Canter (1990), Wilson (1996), Groat & Ahrentzen (1996), and Purcell & Nasar (1992).

Recognizing the differences in curricula among U.S. architecture schools, Spreckelmeyer, Domer & Carswell (1985) questioned if and how such differences manifested in alumni's professional attitudes and work. Spreckelmeyer et al. (1985) developed a model of architectural education that had a curriculum divided into four emphases: design theory, technical theory, applied technology, and design practice. In an ideal education, an architecture student would be trained equally in all four areas, that is, one curricular emphasis would not be neglected in order to privilege another.

Spreckelmeyer et al. conducted a survey of 595 AIA members in the Midwest; of those 595 members, 416 of them had received their FPDs from one of five architecture schools in the Midwest. These five schools were then used as the basis for this study to compare curricular emphases. The participants of this study were asked to evaluate 36 aspects of architectural education according to their expectations, their own educational experiences, and their perception of relevance for these aspects. Spreckelmeyer et al. had four hypotheses, but the one that is of interest to this research stated that differences among schools would emerge due to the varying degrees of importance each school placed on the curricular emphases.

Indeed, they found evidence to support this hypothesis, when comparing the mean ratings of the professional importance of curricular emphases from each of the five schools with the overall mean ratings from all participating AIA members. Two of the five schools showed statistically significant differences between what their graduates rated as important and what overall AIA members rated as important. Such differences suggest that architecture schools' curricular emphases do impact the future professional attitudes of their graduates.

These findings are significant because they underscore the notion that architectural education does have a lasting influence on its alumni that in turn, affects their values as practicing professionals. It is especially important to note the differences among schools' curricular emphases, which is in accordance with Clarke (1994), in that students across the country may all be graduating with the same degree in architecture, but not necessarily with the same perceptions and values they will eventually use in practice.

In addition to focusing on and evaluating curriculum, another line of architectural education research has investigated the degree to which students change throughout their education. Such changes might affect beliefs systems, values, evaluations, preferences and choice of language, with respect to architecture. For example, Wilson & Canter (1990) explored the development of concepts that students used to evaluate architecture, with a sample of architecture students in the U.K. Students from the first, second, third, fourth, and final year of study were equally represented in the sample, in order to identify any potential differences among groups at various stages of their education.

In their evaluations of architecture, the majority of students from all years of study used the constructs of *style* and *form* to understand and describe a building. However, an interesting difference emerged between the first year students and final year students in that students at the end of their education would tend to use more abstract constructs, whereas, the first year students would not. Wilson & Canter (1990) suggested that as the more complex, abstract constructs develop with architectural education, they replace the more basic, concrete constructs. Although such a progression probably is to be expected in any professional education, it is particularly problematic in architecture, as it serves to further distance architects from the rest of the general public, who may encounter difficulty in understanding the more abstract constructs. The results of this study suggest there may be a socialization process into the discipline, beginning with architectural education, that teaches students to think and speak like an "architect".

Building upon the work of Wilson & Canter (1990), Wilson (1996) interviewed a sample of architectural students, representative of five different stages of their education, from two schools in the U.K. She hypothesized that the presence of a socialization process during students' formal education encouraged a way of evaluating architecture that is representative of the larger discipline's attitudes and preferences. In addition to this greater socialization process into the discipline that students undergo, she also predicted that there is a more specific influence on the students that originates from the particular school they attend, similar to what Spreckelmeyer et al. proposed.

By using students' architectural preferences as an indicator of influence from their architectural training, Wilson found evidence of both a larger and a smaller school-specific socialization process. Interestingly, students at the beginning of their education (first, second and third year) from both schools shared similar preferences of architecture, but by their sixth year, the two schools greatly differed in their preference judgment; Wilson attributed the former to the more global socialization process into the discipline of architecture and the latter to the specific influences of each school. These results confirmed her hypothesis "that not only do the schools of architecture socialize architects into the values of the profession as a whole, but also that this same process instills a set of values associated with the specific institution" (34).

Wilson (1996) supports the work of Spreckelmeyer et al. (1985), Wilson & Canter (1990) and also that of Purcell & Nasar (1992). In their investigation of the influence of formal education on architecture students' preferences, Purcell & Nasar (1992) found that education served to shape preferences favorably toward "high-style" architecture. In addition, they also found that it actually seemed to promote a dislike for popular styles of architecture, perhaps indicative of the larger socialization process of architectural education that Wilson (1996) discussed.

A review of this literature suggests that architectural education serves to not only shape the preferences of its students, but also to shape their values to be consistent with those of a particular school and its design faculty as well as with those of the larger discipline. The question that remains to be addressed is: *what are the values of the discipline of architecture that are embedded in architectural education*? Furthermore, *in what ways are these values transferred* and *are some students more willing and able to integrate these values into their lives*? The upcoming section on *Hidden Curriculum and Values in Architectural Education* will discuss the work of Dutton (1991), Groat & Ahrentzen (1996), Robinson (1990), Lewis (1998), Stevens (1995; 1998), and Getzels & Csikzentmihalyi (1976) to address these questions.

Summary of Evaluation on Architectural Programs, Students and Alumni

In discussing the previous research that evaluated programs of architectural education and experiences of architecture students, several themes emerge which have shaped the present research:

1. Broad studies of architectural education have found a lack of a substantive liberal arts education
2. Evidence of socialization in architectural education has been found at two levels: the smaller scale of the individual school and the larger scale of the discipline
3. The isolating nature of architectural education may be a contributing factor to socialization in architectural education

Hidden Curriculum and Values in Architectural Education

In the edited work of Thomas Dutton, *Voices in Architectural Education* (1991), the complexities of architectural education were positioned within their greater social, political and cultural context, recognizing the larger dynamics at play that inevitably affect any system of education. Dutton offered a compelling rationale describing the need for a critical analysis, especially for architectural education:

> …architecture programs are staffed by people (mostly architects) who see the practice and theoretical development of *architecture* as more important than the practice and theoretical development of *education*…What architectural educators spend most of their time debating is Architecture (note the capital A): its histories, theories, techniques, practices, roles, civic and social responsibilities, political consequences, and so on…Debates about architecture need to be extended to the realm of architectural schooling. (xvii)

Specifically focused on design studio, Dutton offered a critique of the established practices, suggesting that there are underlying social, cultural and power dynamics that impede the teaching and learning process. He employed the concept of "hidden curriculum" from pedagogical theory, to further strengthen his argument that no formal system of education is neutral. He proposed that education is not simply about a transfer of knowledge, but rather that it is embedded with the values and attitudes associated with the student-teacher dynamic and the norms of the educational system.

In his discussion of the design studio, Dutton recognized that this system is quite unlike other classroom situations, and perhaps it may have more in common with dynamics found in the workplace. He identified the issues that he believed are relevant to both: hierarchy and competition. Dutton argued that both hierarchy and competition are readily apparent in the design studio, and are embedded in how such instruction is structured. A hierarchy in design studio takes the form of the long-standing master-apprentice model. Competition in design studio, although intended to be a motivating factor for students to produce better quality work, actually has the potential for quite negative effects, such as students guarding their own work fiercely thereby learning that design is not a cooperative, collaborative effort.

The research of Chris Argyris from the *Architecture Education Study*, in Porter & Kilbridge (1981), offers substantive support to the claims that Dutton is making regarding the dynamics of design studio. One of the most intriguing concepts that Argyris used to describe student and instructor interactions from his research on architectural education is that of the "mastery/mystery syndrome." Referring to the vague, subjective critiques commonly found in studio instruction, Argyris explained that, "…the student assumes the mystery is an indication of the mastery of the teacher; he [*sic*] comes to accept the mystery when he can connect it with the mastery"(575). Dutton (1991) concluded that this pedagogical system, which sets students on a never-ending quest to understand an instructor's mastery, that is shrouded in mystery, only serves to reinforce the power of the instructors and to "silence and repress" the students (174).

Groat & Ahrentzen (1996) further explored the presence of a hidden curriculum in architectural education in their study of over 600 students from six architecture schools in the U.S. Specifically, they were interested in how the system of architectural education with an embedded hidden curriculum, affects either positively or negatively, those students who are traditionally underrepresented in architecture (defined as women and minorities). The results of their study supports Dutton (1991), in that competition and hierarchy were present and did have detrimental implications for a learning environment. Furthermore, they found that the lack of a diverse faculty and student body may be a contributing factor to sustaining these aspects of the hidden curriculum; that is, the schools with a lower representation of women (either as students or faculty) also had an atmosphere of competitiveness, hierarchy and general absence of community.

Another of their significant findings uncovered the differences between what male and female students valued in their architectural curriculum. They found that female students consistently ranked the following curricular emphases as more valuable than their male counterparts: sociocultural and psychological concerns, community design work, design projects of social relevance, and environmentally responsible design/building. Female students also perceived the subject areas of architectural history and historic preservation to be more valuable in their education than male students. Furthermore, Groat & Ahrentzen found support for the notion that female students are more likely than male students to value non-traditional pedagogical practices, especially

in design studio. Their research suggests the need for schools of architecture to understand and appreciate the various ways an architecture curriculum could be conceptualized in order to more effectively address the needs and values of all of its students.

Robinson (1990) took a unique, anthropological approach to her study of architectural education in that she situated the discipline of architecture within a larger cultural context, recognizing the other forces at work that shape the built environment, namely the general public. She adapted anthropological terms to describe the two perspectives at play in the practice of architecture: *etic*, the professional point of view, and *emic*, the layperson's view point[8]. Difficulties arise when the etic perspective is privileged over the emic, contributing to a precarious situation where the architectural profession is deemed irrelevant and out of touch by the general public. Robinson argues that the profession is indeed in such a position and that this problem is further perpetuated and exacerbated by the current practices of architectural education.

She described the prevailing wisdom in architectural education to almost exclusively teach the etic perspective while neglecting the emic, thereby teaching students to lose touch with the needs, desires and perceptions of the general public. Students learn to align themselves with the discipline, as represented mostly by studio faculty who employ a master-apprentice model of teaching, and develop a value system that is in accordance with it. Robinson cited a number of factors that contribute to the imbalance in perspectives in architectural education, that have also been previously well documented by researchers such as Boyer & Mitgang (1996) and Groat & Ahrentzen (1996; 1997). One of these factors is the insular atmosphere that the design studio in architectural education typically fosters. Although it is generally experienced as a supportive, cohesive community by many architecture students, the studio culture is also very much removed from the outside world. Furthermore, architecture students are relatively isolated from other disciplines at universities. Robinson argued that these circumstances in turn reinforce for architecture students that the professional understanding of architecture is to be valued and the layperson's perspective is not.

[8] Robinson adapted the anthropological terms *etic* and *emic* to fit in an architectural context; she does not use them as they are most commonly referenced in the anthropological literature. Typically in cultural anthropology, emic refers to an insider's perspective and etic to a scientific observer's perspective.

Robinson suggested that design education needs to become "culturally critical" in order to address the present imbalance of perspectives in schools of architecture. A culturally critical design education would incorporate and appreciate the emic perspective, encouraging students to understand cultures different from their own and to conceptualize the design process as a comprehensive matter situated in a cultural context.

Lewis (1998) addressed similar topics of inquiry to Wilson (1996), Dutton (1991), Robinson (1990) and Groat & Ahrentzen (1996), regarding the socialization process of architectural education and the transference of values, but in a completely different way. In his book, *Architect? A Candid Guide to the Profession* (1998), he presented an unabashed, brutally honest depiction of the education and practice of architecture, intended for an audience of potential students, considering a degree in architecture.

Lewis does not offer any critical analysis of architectural pedagogy, or any encouragement for the newcomer to subvert the system, but instead he simply describes and paints a picture of the system as he, an architectural educator, sees it. A fair amount of effort is devoted to explaining the language of architecture, that is undoubtedly unfamiliar territory to anyone outside the subculture of architecture, and there is even a section of the book titled "New Values, New Language" (63). Lewis very plainly writes of this new language:

> …[it's] an imprecise vocabulary. Only architects and a few architectural groupies really know the lingo…you will first hear the language from your teachers, then from upper-level students and others who read the architectural media and architecture books (64).

Lewis did not specifically use the term "hidden curriculum" in his writing, but it would be an appropriate title for his subject matter. His goal was to help incoming architecture students set realistic expectations for and to educate them about the harsh, frustrating nature of the system. For example, he wrote:

> And every year, with each new batch of jargon and classifiers, the vocabulary list lengthens, while the uncertainty and subjectivity persists as always. Thus, beginning architecture students should remember that this is part of the tradition and should not let first year language shock or deter the quest for creative solutions, enlightenment, and rationality (73).

Summary of Hidden Curriculum and Values in Architectural Education

This body of literature highlights the importance of implicit systems operating within architectural education that shape a student's socialization during education. The following key points summarize the findings from this research:

1. No system of formal education is neutral, but rather it is embedded with the values, attitudes, and norms of the educational system
2. Hierarchy and competition, specifically in design studio, are two ways in which the hidden curriculum manifests in architectural education

Bourdieu's Theories Applied to the Education and Discipline of Architecture

The work of Stevens (1995; 1998), self-proclaimed "architectural sociologist," plunged into the depths of the social, cultural, and political issues specific to the architectural discipline. Much of his research has developed from his own experiences as a University of Sydney architecture faculty member, having taught technology courses, and observed the disinterest and even disdain of many architecture students toward such courses (e.g., Fire Safety, Structures)[9]. He detected differences between the students who took interest in courses such as these and those who did not, questioning the origin of such differences.

Stevens offered a relatively novel method to studying the social and cultural complexities of architectural education, in suggesting one must look to other disciplines outside of architecture, such as sociology and anthropology. Specifically, he applied the work of French sociologist, Pierre Bourdieu, as a framework to analyze the indoctrination of architectural education. Stevens asserted that Bourdieu is especially useful to studying this situation, for his work on societal status considers how the subtleties of one's being reinforces his/her status in life and membership to a closed, homogenous group. Bourdieu's theories on the field of cultural production, which define the notions of cultural capital and habitus, are particularly apt to further support Stevens' argument that architectural education encompasses far more than just transference of knowledge.

[9] Architectural education at this university is comprised of two separate departments: one for design (Architecture, Planning and Allied Arts) and one for technical classes (Architectural and Design Sciences).

Stevens plainly stated the thesis of his work, in that "*…there is a social basis for intellectual development"* (1998, 2), a sentiment that resonates with the perspectives of Dutton (1991) and Groat & Ahrentzen (1996). He presented comprehensive analyses of the factors underlying success in the field of architecture, thereby dispelling the myth of "creative genius," and instead, making connections to existing conditions, such as race, gender, socioeconomic status, that perpetually serve to privilege the privileged. But, instead of focusing on a rather broad descriptor of a person, such as race or gender, and how that impacts their position in society (or actually for this discussion, in the field of architecture), Stevens looked to Bourdieu's theories on the field of cultural production for a more comprehensive measurement of a person's being, that would also include one's academic accomplishments, social networks, tastes, preferences, and behaviors, known as cultural capital.

Although Stevens effectively appropriated Bourdieu's concept of cultural capital for his analyses of architectural indoctrination, he proposed that Bourdieu's term of habitus is even better suited. To reduce it to a grossly oversimplified form, habitus is a descriptor for how, what, and why one does what one does, as shaped by given circumstances (e.g., family history, class status, other larger societal factors). As Stevens interpreted it, habitus is a guiding force, not necessarily a determining force in everyone's life; however, it is always present. He related the concept of habitus to the subculture of architecture by writing:

> It is clear that in architecture, the procedures and processes of design are not at all objectified…and that architecture, unlike medicine or engineering or even law, requires not only *knowing* something, but *being* something. We colloquially call this quality of being 'genius' (1995, 112)

Habitus, as Stevens suggested, is often conflated with or even mistaken for this quality of being "genius"; in other words, such creative talent that is so quickly and simplistically labeled as "innate" in architectural education, deserves far more attention and critical analysis.

Stevens argued that architectural education seeks to, and indeed does, attract and train those individuals whose habitus is already in alliance with the discipline of architecture; that is, those individuals who possess and exhibit high cultural capital

inherited from the circumstances of their upbringing. Those who do not have such a privileged background would quickly and intuitively feel the social unease of being out of one's element in architectural education, and as Stevens suggested, would self-select out. This system, which serves to continually favor the favored, is problematic and unsettling for a number of reasons, such that it serves to perpetuate the existing lack of diversity in architecture, and it implicitly discourages individuals who feel they "don't look the part" to pursue an education in architecture.

In Stevens' discussion, he raises the point that those students who do display a high level of cultural capital in architectural education are likely to receive advantages that are not necessarily deserved. This then leads to the subject of success in architecture, and questions of the potential underlying indicators for success. Such inquiries are most often neglected in discussions of influential architects, for as Stevens points out, the disciplines of architecture and the fine arts are especially married to the idea that innate talent and creative genius are the formula for success. However, a few researchers have explored this subject to elucidate that achieving fame in architecture or the fine arts, is a more complicated matter. For example, Roxanne Williamson (1991) described the apprenticeship connection as the most predictive of an architect's future success; she diagrammed a complicated lineage of famous architects beginning with Thomas Jefferson, linking the apprentices with the master, to clearly see the connections of fame over 200 years in the U.S. She also discussed the value of an apprentice's family advantage, wealth and social prestige (all of which are indicators of cultural capital) as important factors in historically determining that apprentice's success. This is not to say that talent, ambition, and perseverance were absent from these scenarios, but rather that those characteristics alone, cannot fully explain the dynamics of success in architecture.

Another example is that of Getzels & Csikszentmihalyi (1976), who designed a fascinating research project that followed fine arts students through their education to ten years later, documenting what level of success each had attained, in an attempt to understand what factors best predict success as a professional artist. Success was defined as a certain amount of recognition in the art world, such as having a particular number of exhibitions; monetary gain alone was not necessarily indicative of success for this study.

All participants completed a battery of mental, perceptual and personality tests, including one that specifically measured values (Allport-Vernon-Lindzey Study of Values). This measurement includes six basic values that are supposed to embody human motivation, two of which are of interest to this discussion: aesthetic and economic values. They found that relative to other groups of students, fine arts majors tended to score low on economic value and high on aesthetic value, indicating they had little interest in monetary rewards and great interest in finding meaning through art. Interestingly, and perhaps to be anticipated, students who chose to study a sub-field of the arts (e.g., advertising or industrial arts) with more promise of financial stability, were the exact opposite of the fine arts students, scoring high on economic value and low on aesthetic value.

Although it was not expected, the researchers found that those fine arts graduates who came from a more privileged background, economically, educationally, and socially, were indeed more likely to succeed as artists. Regarding this finding, Getzels & Csikszentmihalyi wrote, "This is a disillusioning thought. One would like to believe that, at least in art, money and status play no part in determining success" (1976, 165).

Apparently it is commonly thought, especially in fields of creativity such as architecture, that success is unrelated to such factors as one's status and family background. This brings us back to Stevens' critique of the prevalent idea of "giftedness" in architecture: "The notion that one is born with natural talents *completely independent* of the privilege of being privileged by one's social class is the ideology of giftedness, and in no field is this belief more strongly held than in art and architecture" (116). It is precisely for this reason that the work of Bourdieu serves as an effective tool to challenge this belief along with the inherent accompanying assumptions often found in architecture.

There have been other scholars in addition to Stevens who have applied Bourdieu's theories to the study and practice of architecture. Sociologist Bridget Fowler, a noted expert on Bourdieu's work, ventured into this territory in the work co-authored with Fiona Wilson, *Women Architects and Their Discontents* (2004). Fowler & Wilson were specifically interested in the gender disparities present in architecture, given that women have a higher rate of attrition in architectural education than men, and that a small

percentage of those women who do complete their schooling go on to become practitioners. Although this research was conducted in the U.K., the demographics and dynamics of the profession in this work could easily be mistaken for those of the U.S.

Fowler & Wilson (2004) began with the premise that architecture continues to be a male-dominated discipline, with specific obstacles in place that perpetuate the exclusion of women. Through the lens of Bourdieu, they suggested that the profession of architecture has historically been structured as a discipline of the privileged and for the privileged, whose members were typically white and male. In Bourdieuian terms, Fowler & Wilson described the discipline of architecture as a "naturalized social construction of masculine domination" (2004, 103). In other words, architecture continues to be guided by a predominantly male point of view; this sentiment is similar to that found in Anthony (2002) and Groat & Ahrentzen (1996; 1997).

In support of their Bourdieuian analysis of the gender and social class disparities in architecture, Fowler & Wilson conducted interviews with practicing architects in Scotland. They found that about one-half of those interviewed didn't believe that having a privileged background mattered in establishing a career in architecture, and only about one-third did see the advantage of possessing such social and cultural capital. One of those representative of the minority opinion was quoted on this matter: "Those from the higher social classes are better connected, they have access to a more effective, and a wider network, through their father's contacts. If they have been to a private school they have a network with a wider range of successful people" (112).

The socioeconomic backgrounds of the architects who participated in this study offer some needed context to interpret this particular finding. The majority of the participants had spouses/partners in a professional/managerial position (57%), and had fathers in a similar position (69%). Perhaps it was the case that those who denied the importance of privilege in establishing a career, were privileged themselves, and failed to recognize the assistance that it gave them. This idea was also discussed by Blau (2003), not in reference to socioeconomic status, but rather, regarding the impact of race on financial success. She found evidence that white Americans have a tendency to attribute economic success in their lives to their own *efforts*, rather than to recognize the larger societal factors (in her study, race) that enabled such success. To extend this to the work

of Fowler & Wilson, it could be that those respondents who had the advantaged position of a higher SES background, tended not to consider how that position has served to benefit them in their careers.

Another author has employed the theories of Bourdieu in her work on architectural education. Katerina Ruedi's essay *Curriculum Vitae* (1998b) is an unusual piece of writing, but nonetheless, quite powerful in developing an argument for the utility of Bourdieu's work in examining the architectural discipline. Ruedi's essay is essentially her own curriculum vitae, carefully dissected and heavily footnoted with Bourdieuian analyses of the underlying meanings of every component. She thoroughly and critically analyzed both her educational and professional experiences, highlighting the points in which cultural capital played a significant role. Specifically, Ruedi emphasized those points in her life when "key moments of financial support (private and public) enabled the subject to bypass some of the restrictions of her class and gender" (27).

Her method of applying Bourdieu's theories to architecture, by dissecting and exposing her own life as an architectural student and practitioner, is amazingly compelling, for two reasons. Firstly, her personal account is a refreshing departure from most writings on Bourdieu, but perfectly fitting; situating herself as the subject matter is an engaging and effective tool that harnesses grand sociological theories and brings them to the scale of an individual. Secondly, she is writing from within the architectural profession about the architectural profession. Many of those who write critically about the discipline of architecture are primarily academics and/or researchers, not practitioners. Although Ruedi was and still is both an academic and an architect, she positioned herself within the discipline as a practitioner, and as such, her recognition of the role that architecture plays in the reproduction of cultural capital imparts her authority as an "insider" to this world.

Summary of Bourdieu's Theories Applied to Architecture

Although Bourdieu's work has not been applied to the field of architecture by very many scholars, the review of this body of work illustrates that it is an appropriate tool of analysis for the subject of socialization in architecture. There are a number of key points to highlight from this research:

1. Stevens (1998) argues Bourdieu's theories are particularly apt to study socialization in architectural education, as it has been a system heavily dependent on the notions of talent, giftedness and genius, not considering broader social and cultural factors
2. Bourdieu's theories offer a framework to explain the long-standing lack of gender, racial and class diversity in the architectural profession

Sociology of Education

Introduction

This section will document relevant research conducted in the sociology of education realm with an emphasis on the work that has employed Bourdieuian theories in exploring inequalities in education. Themes to be addressed include: how cultural capital correlates with academic success, the effect of teachers' backgrounds (i.e., race, SES, habitus) on student success, and research on college destination and cultural capital. Also, this body of research offers examples of various ways to operationalize cultural capital that will ultimately informed my research design.

Cultural Capital and Educational Outcomes

Bourdieu's concept of cultural capital has been at the heart of much research in the sociology of education literature; one of the earliest and most widely cited studies on the impact of a student's cultural capital on his/her academic success was conducted by DiMaggio (1982). Previous research had failed to make connections between a student's socioeconomic status and his/her success in school, when the variable of the student's measured ability was controlled; however, measured ability alone did not explain a student's success in school. DiMaggio hypothesized that the missing variable to understand variations in academic success that cannot be explained by either a student's ability or SES may lie in a student's participation in cultural activities.

DiMaggio employed Bourdieu's theory of cultural capital and for the purposes of his research, defined it as students' participation in "prestigious status cultures" (190), which was specifically their involvement in art, music, and literature. Based on DiMaggio's definition of cultural capital as one's interest and level of participation in

high status cultural activities, he found that cultural capital is positively correlated with high school grades; specifically, he concluded that, "…participation in prestigious status cultures has a significantly positive impact on grades" (194). Interestingly, he found a low correlation between parental education and students' cultural capital, which is in sharp contrast with much of Bourdieu's writings, and concluded that parental education is not a satisfactory substitute measure for cultural capital.

Building on the work of both Bourdieu and DiMaggio, Aschaffenburg & Maas (1997) researched the impact of parental cultural capital and student cultural participation on students' educational outcomes. They measured educational outcomes in terms of transitions in education for students ages 12-24. They identified four major transitions in education: 1) transition to entering high school 2) transition to a high school graduate, 3) transition from high school to entering college, 4) transition to a college graduate.

They operationalized a student's level of cultural capital somewhat differently from DiMaggio, in that they did not focus on student attendance or interest in arts events, but rather on their arts education, i.e., classes in painting, sculpture or dance. Parental cultural capital was measured by how often the parents participated in a particular cultural activity while the student was growing up: listening to classical music, taking the student to art museums or galleries, taking the student to performances (plays, music, dance) and encouraging the student to read outside of what was required for school.

The researchers generally concluded that, "Culture – call it cultural capital, cultural socialization, cultural participation, both the individual's and the parents' – matters for educational attainment" (584). Differences in cultural capital had the most impact on the transition from high school to college, in that those students from socially advantaged backgrounds were more likely to attend college than their disadvantaged peers. This supports the social reproduction model, which Bourdieu advocated and states that those from privileged upbringings will benefit most from further cultural capital that is accumulated in education.

In her research on educational attainment, Dumais (2002) employed Bourdieu's theories of cultural capital and habitus to understand differences in patterns of achievement. She argued that previous research on this subject, which incorporated Bourdieu's concepts, only focused on cultural capital and neglected the notion of the

habitus. She defined habitus as, "one's view of the world and one's place in it" (45) and believed that it should be recognized as equally as important as a student's level of cultural capital in research. However, habitus was rather narrowly defined in her research and measured by students' occupational aspirations, specifically whether or not they believed they would pursue white-collar jobs. In addition, there were six measures of cultural capital in the survey: "borrowing books from the public library, attending concerts/musical events, going to art museums, attending art classes outside of school, music classes outside of school, dance classes outside of school" (50).

Differences in rates of cultural capital were greatest when students were grouped according to their SES, in that students of a high SES had higher levels of cultural capital than lower SES students; there were also gender differences to note as well. In general, girls participated in more cultural activities than boys, regardless of their SES. Habitus appeared to be a significant factor on students' grades, in that, the students with higher aspirations, also had higher grades.

Dumais recognized that her findings on the role of habitus on students' grades were potentially ambiguous, in that one cannot be certain if good grades motivate students to have higher occupational aspirations, or if their occupational aspirations motivate them to achieve good grades. In either case, she argued that future research needs to address the impact of habitus as well as cultural capital on social reproduction in education. Also, the way that habitus and cultural capital are operationalized needs to be addressed, in that perhaps definitions are too narrow, or aren't well suited to an American schooling context.

Summary of Cultural Capital and Educational Outcomes

This particular body of research examined the links between students' levels of cultural capital and educational success. The major implications from these works for the present research are as follows:

1. A range of ways to operationalize cultural capital were found in these studies, mostly involving students' levels of participation in cultural activities, some also acknowledging the role of parental involvement. The cultural capital measures

(to be fully outlined in Chapter 5) used in the dissertation research drew directly from these particular studies.

2. Positive correlations were identified between students' levels of cultural capital and educational achievement, documenting the advantages that students with higher amounts of cultural capital experience.

Considering the Effects of Teachers' Backgrounds on Student Performance

Much of the research questioning the role of cultural capital in education only focuses on the students' background, neglecting to address the importance of the teachers' background on student performance. Two studies will be outlined in this section that considered the role that a teacher's background played in contributing to inequalities in education. One of the earlier pieces of research that considered how students' and teachers' racial and socioeconomic identities interact to impact students' academic performance was Alexander, Entwisle & Thompson (1987). They hypothesized that teachers with a high SES background would have less familiarity with and possibly more difficulty in dealing with students from a lower SES background. Furthermore, they also hypothesized that white teachers would have more difficulty relating to and understanding black students with a low SES.

Alexander et al. did find that the students' race had an impact on teachers' evaluations and that the teachers' SES also had an impact on the evaluations of students. Specifically, they concluded that teachers with a high SES background tend to rate their black students more negatively than their white students; teachers with a low SES background did not show this pattern of negative evaluation based on race. As they wrote, "Black performance falls short of white only in the classrooms of high-SES teachers: not a single race difference is significant among low-SES teachers" (674). Interestingly, this pattern holds true for all high SES teachers, regardless of their race, in that black teachers with a high SES also rated their black students more negatively than their white students.

Alexander et al. emphasized the need in sociology of education research to not only examine the students' attributes, but also the teachers', as their research supports the notion that there is potentially a powerful interaction between the teachers' and students'

background. Furthermore, a teachers' evaluation and resulting encouragement or discouragement in the very beginning of a student's formal education could have a lasting impact on the student's future level of achievement and aspirations.

Farkas, Grobe, Sheehan, Shuan (1990) explored the role of cultural capital in educational achievement questioning the impact of teacher bias on evaluations of students' non-cognitive behaviors, as well as how strongly these evaluations correlated with students' grades. Their data set included measures of student performance on coursework as well as teacher judgments on students' habits and behaviors. In contrast to the other studies reviewed thus far in the sociology of education literature, the sample of students in this study was racially diverse and a large percentage came from a low SES background, representative of the larger school district's demographics.

On measures of basic skills, both ethnicity and SES were significant variables, in that low SES students scored lower than high SES students, and Anglos scored higher than African-Americans and Hispanics. On measures of absenteeism and work habits, they found that when African-American students had African-American teachers, their rates of absenteeism declined sharply and their work habits were rated more positively. However, African-American teachers also rated their African-American students to be more disruptive than the white teachers did. Although these findings may seem to be somewhat in conflict, they effectively provide support for Alexander et al.'s proposition that teachers' and students' backgrounds create an important interaction in the classroom.

One of their strongest findings was the importance that teachers' evaluations of students' work habits had on students' grades, even when students' cognitive performance was controlled. They did not find significant differences in students' grades when examined by gender, ethnicity or SES when cognitive performance was controlled. They concluded that teachers' evaluations of students' non-cognitive performance were an important determinant of students' grades, and as they wrote, "…teachers reward "citizenship" over and above cognitive (test score) performance" (140). They concurred with Alexander et al. in that teacher background and characteristics should be considered an important variable in the sociology of education research.

Summary of Effects of Teachers' Backgrounds on Student Performance

These two studies considered the interaction of students' backgrounds and teachers' backgrounds on educational success. Frequently, studies on the impact of cultural capital and backgrounds in sociology of education only consider attributes of the student. These studies present compelling evidence for why the instructors' backgrounds should also be included in such research questions. Key points from these studies are:

1. Alexander et al suggested there is a powerful interaction between the race and backgrounds of students and teachers, in that teachers with a high SES background, regardless of their race, tended to rate their black students more negatively than their white students. Farkas et al also found that black teachers tended to rate their black students more negatively than their white students, however rates of absenteeism for black students dropped sharply when they had a black teacher.
2. Although the results may seem contradictory, these two studies underscore the importance of considering how a teacher's race and background can interact with those factors of his/her students to the benefit or detriment of the student.

Cultural Capital and College Destination

The final stream of research in the sociology of education literature to discuss is that of cultural capital and college destination. All studies falling into this category share an underlying skepticism that the American higher educational system is a meritocratic one. Using Bourdieu's theory of cultural capital conversion as a framework for their research, Persell, Catsambis, Cookson (1992) questioned how the ability to convert cultural capital into educational gains may differ by gender and class. They sampled public high school students as well as students at select elite boarding schools in the U.S. to gauge the likelihood of attending a selective postsecondary institution.

Gender differences emerged, in that generally the male students had higher rates of converting their social and cultural assets into selective college attendance than female students. For instance, having a college educated father and a higher family income, for the public school sample, increased a male student's chance of attending a selective college by 50% more than it did for a female. However, there were three measures where

the females had an advantage over males in converting their resources: mother's education level, parental aspirations for the student to attend college, and senior year test scores. Among public school students, the researchers concluded that female students make up for the differential asset conversion by having more resources than males to convert, in that they generally had higher grades, higher occupational aspirations, did more homework, and had parents with high college aspirations for them.

When the public school sample was compared with the elite boarding school (EBS) sample, it was clear that attendance at the latter greatly increased one's chances of attending a selective college. Students at EBS are more than seven times as likely to attend selective colleges than public school students; even when grades and test scores are controlled, EBS students still have a greater likelihood of attending selective colleges. The authors concluded that, at least in this research, the effects of class (as defined by attendance at either public school or an EBS) were much stronger than gender in predicting selective college attendance.

Lacking from this research was a clear definition of cultural capital and a description of how it was measured. Although it was not explicitly defined in the research, it appears as if cultural capital was solely defined by family income and parental education level, as there were no questions of participation in cultural activities. Nevertheless, this work is worthwhile to review as it explored inequalities in education, according to class and gender, with class having the greatest effects.

In his research, Hearn (1984) questioned the role of students' ascribed characteristics (race, gender, SES) and academic factors (grades, SAT scores, participation in extracurricular activities) on college destination. He found that educationally relevant factors played a more significant role in determining whether a student attended a selective institution than ascribed characteristics did. However, ascribed characteristics were found to be significant as well, in that African-Americans, women and lower SES students were less likely to attend selective colleges; even when academic factors were controlled, these groups were still found to be less likely to attend a selective institution.

Hearn (1991) updated and replicated his research from 1984, with a larger, more recent database, and reached very similar conclusions as he did in his prior work. Again,

he questioned the selectivity of college destination for students, given their ascribed and academic characteristics. Even though "the primary direct influences on college destinations are academically based," he still found evidence that disputes the meritocratic model of American higher education, in that lower SES students were significantly less likely to attend selective institutions than their higher SES counterparts even when academic factors were controlled. Effects of race and gender were present as well, but as Hearn wrote, "…the effects of class stand out as both stronger and more consistent" (168), when compared to those of race and gender.

Karen (2002) sought to replicate and update the work of Hearn (1991) using a data set from 1988, to specifically address the changes that occurred in college destination from 1980-1992. Simply stated, Karen's research question was "Who goes where to college?" (197). His findings were consistent with Hearn (1984; 1991) in that academic factors were the strongest indicator of where students attend college, however, there were significant differences in college destination based on race, gender and class. As Hearn found, African-Americans, women and lower SES students were all less likely to attend selective institutions, even when academic factors were controlled.

Karen suggested that if American universities want a more diverse student population, "…then the nets need to be cast more widely so that a greater diversity of people and talents can be brought into the widest range of institutions. Not only must institutions reward a broader range of talents, but, to the extent that they do rely on traditional criteria for admissions, they must implement them fairly" (204). Such a conclusion implied that discrimination against women, minorities and lower SES students at selective institutions has been conscious and intentional on the part of the universities. There seems to be an important question missing from this line of research, which is, are these students "self-selecting" out? That is, are they seeking admission and being rejected or are they even applying to selective institutions? The work of McDonough on college destination sheds light on this issue, as she applies Bourdieu's theories and examines the role of the student's and organization's habitus on how such decisions are made.

In her research on college destination, McDonough (1997) questioned how a student's social class and high school guidance can influence their decision making

process on where to attend college. She conducted extensive interviews with a sample of students, as well as their families and friends, at four California high schools that vary in terms of resources and prestige.[10] Her work was conceptualized within a Bourdieuian framework, in that she not only addresses the students' habiti but also the high schools' habiti, to understand college destination. As she explained,

> Habitus exists not only in families and communities but also in *organizational contexts*. Organizational habitus is a way to understand schools' roles in reproducing social inequalities. Organizational habitus refers to the impact of a social class culture on individual behavior through an intermediate organization, in this case, the high school (156).

One of her key findings was that of "entitlement," in that given a student's and/or high school's habitus, the student will believe that she is entitled to a particular kind of higher education. For instance, students sampled from a private high school felt entitled to the best education possible, whereas students on from a poorly funded public school, felt entitled to a community college education. McDonough emphasized the importance of the context within which students live, going beyond a simplistic definition of either high SES or low SES to understand college destination.

Summary of Cultural Capital and College Destination

This body of research investigated the extent to which a student's cultural capital affected their college selection. Primarily large sociological datasets were employed to examine the connection, but McDonough (1997) offered an alternative research design, using qualitative methods. The key findings from these studies are:

1. In addressing the question in its simplest terms, *Who goes to college where*, researchers found a strong positive relationship between students' cultural capital and their likelihood to attend a selective university.
2. Although there was evidence of racial and gender differences in some of this research, the effects of class were usually even stronger in predicting the likelihood that a student would attend a selective institution.

[10] McDonough chose only to sample white females, in order to hold race and gender constant, and just concentrate on the effects of social class.

3. McDonough's work underscored the utility of considering organizational habitus (of the students' high school), in addition to a student's habitus to account for the complexities inherent in a student's college selection.

Conclusion

This chapter offered an overview of literature from two fields that are pertinent to this dissertation research: architecture and sociology of education. The research that has previously been conducted on architectural education provided background information on this particular system of education as well as informed the design of the survey instrument used in the present research. Stevens' research is perhaps most aligned with the dissertation research in that he has examined architectural education through a Bourdieuian lens, citing sociological information to support the notion that students from a privileged background are at an advantage. This dissertation research differs substantially from Stevens' primarily in the research design; as opposed to Stevens' broad sociological approach, a case study strategy was employed, with survey and interview instruments to question the role of cultural capital in socialization in architectural education. These methods will be fully detailed in the following chapter.

The slice of sociology of education literature reviewed here laid the foundation of how Bourdieu's theories have been adapted to study educational outcomes, teacher and student interactions, and college destination. They provide the groundwork on which the present research stands, expanding the use of Bourdieuian theories to a particular field of study, architecture. Through a variety of research methods and tactics, each of the studies reviewed produced substantial evidence to support the notion that class and cultural capital are valuable considerations when examining a student's educational experiences.

Chapter 3

Methods

Introduction

This chapter introduces the research methodology for this study, including the rationale for using a case study strategy that employs both quantitative and qualitative measures. A pilot version of this study that was conducted in 2006 at School A, which greatly informed the present research, will be reviewed. The case study sites will be described and the reasons for their selection will be discussed in detail. A comprehensive description of the faculty and student participants in this research will be presented, noting patterns of similarity and difference between the two case study sites. Lastly, an outline of the quantitative and qualitative analyses employed will be discussed.

Before the research methodology is discussed, particular terminology used throughout this chapter must first be defined. Groat and Wang (2002) make a deliberate distinction between the language used for a study's "research design" and the instruments used to conduct the research. They refer to the former as a "research strategy" and the latter as "tactics." Examples of strategies that they offer include qualitative, correlational or case studies. Within a particular research strategy, a researcher will choose tactics that best address the research question under study. Examples of tactics include observations, interviews, and surveys. Although particular tactics may usually be associated with particular research strategies, e.g., interviews in a qualitative research strategy, this is not always necessarily the case. This chapter will use the terminology of Groat & Wang (2002), defining the research strategy as a case study and its tactics as a combination of quantitative measures (surveys of students' experiences) and qualitative measures (interviews with students and faculty).

Research Strategy

The research design for this study is a case study strategy, using the case study sites of two selected U.S. architecture programs, referred to throughout this dissertation as Schools A and B. Firstly, it is important to document why a case study research strategy is the most useful given the research question I am posing of *how do the factors of a student's level of cultural capital/habitus and an architecture program's organizational habitus, which includes elements of the hidden curriculum shape a student's socialization into the subculture of architecture?* The five primary characteristics of a case study as outlined by Groat & Wang (2002) are as follows:

1. A focus on studying cases in their real life context
2. A capability to explain causal connections
3. A consideration to developing theory during research design
4. A dependence on several sources of evidence
5. An ability to generalize to theory

All of the characteristics listed above, with the exception of number 2, (as there is no interest in making claims of causality in this study) are applicable to this research. To create the richest possible picture of the dynamics at Schools A and B, this research needed to be conducted on site in the "real life context" of each architecture school. Given that this work was motivated by Bourdieuian inspired theory (e.g., McDonough, 1997; Stevens, 1995), consideration to building on that theory was a critical component during research design. Relying on several sources of evidence, including both quantitative and qualitative tactics, allowed for a richer description of the two case study sites than a single source of evidence could.

Furthermore, as Yin (2003) argued, a case study strategy is particularly appropriate when asking *how* or *why* research questions, as he explained, "…you would use the case study method because you deliberately wanted to cover contextual conditions" (13) . Using the strategy of case studies allows for an in-depth, comprehensive examination of two architectural programs in this research, examining dynamics in their real world context, in order to speak to the larger question of socialization in architectural education. Further discussion will follow on how these two particular case study sites were selected later in this chapter.

Survey and Interview Instruments

The tactics that were used within the case study strategy were a combination of quantitative and qualitative measures. These measures included a written survey for students (Appendix B), and interviews with students and studio faculty (Appendix C). The survey was previously developed for research conducted with graduating architecture students at School A in April 2006 and included five banks of questions: *Perceived & Ideal curriculum, Studio experiences, Satisfaction, Problematic experiences* and *Goals & Motivations*. The survey also incorporated open-ended questions regarding the strengths and weaknesses of the program, which helped to further support conclusions made based on students' responses to the quantitative survey questions.

The survey instrument was developed based on previous work conducted in the realm of architectural education research. Primarily, survey questions were modeled after those from Groat & Ahrentzen's (1996) questionnaire in their study of six U.S. architectural schools. Other questionnaires employed in the work of Spreckelmeyer et al. (1985) and Boyer & Mitgang (1996) also informed development of this survey.

Qualitative measures have also been included in the tactics of the present study, for it was expected that interviews with students would offer even richer information regarding their experiences, allowing them an opportunity to expand upon the issues that are most meaningful to them. The interview questions were developed to address the primary issue of interest, i.e., socialization in architectural education as it relates to a student's cultural capital, a school's organizational habitus and issues of the hidden curriculum. Interviews with faculty offered the potential for another perspective (i.e., from the faculty as opposed to from the student) on these issues in architectural education.

The pilot research of April 2006 has greatly informed the present research. The survey instrument that was administered for this dissertation research has been modified slightly from the one implemented in the pilot research to incorporate 11 measures of cultural capital. In the initial pilot study, a student's socio-economic status (SES) was gauged only by their parental levels of education and type of high school the student attended, either public or private. While these factors contribute to a rudimentary understanding of a student's SES, they do not address their levels of accumulated cultural

capital during childhood. Based on previous research investigating the interaction of a student's cultural capital and his/her educational outcomes (DiMaggio, 1982; Hearn, 1991; Karen, 2002), the survey for this research was adapted to include an additional 8 measures of cultural capital. These measures will be fully outlined in Chapter 5.

There were a number of significant patterns identified in student responses from the 2006 pilot data of School A, one of which was that the majority of students reported a lack of integration among their courses. Studio reigns supreme in architecture schools, and although students may agree with this practice as indicated by their high ratings of *Design studio* in their *Ideal Curriculum*, they do not want their other courses, especially in practical and/or technical areas, to play such a minor role in their education.

When the pilot research data was analyzed according to program type, differences emerged between the UG, 2G (further separated into 2 groups: domestic and international students), and 3G areas.[11] On measures of satisfaction with the program and with the faculty in particular, the 3G students fared much better than the other program groups. When responses were grouped and analyzed according to students' socio-economic status (SES), a pattern of satisfaction emerged with the highest SES group being the most satisfied, and the lowest SES group being the least satisfied[12]. This was especially apparent in responses to students' satisfaction on questions of interaction with architecture faculty. All of these patterns of differences will be avenues of investigation for the present research, and have informed the design of the in-depth interview questions for the students and faculty. All survey and interview instruments have been IRB approved for the dissertation research.

Selection of Case Study Sites

As one of the respected authorities on case study research, Robert Yin (2003) provides useful guidelines for researchers on selecting case study sites. When employing a multiple case study strategy, the researcher must identify the purpose for including each selected site into the research. Yin suggests that a multiple case study research design is

[11] The demographics of the 2G students looked quite different from the other program groups, in that 40% of the 2G students were international students. Of the 14 students who are categorized as "2G International," the majority of them (11/14) are from South Korea.

[12] SES was narrowly defined in this pilot study by parental levels of education and type of high school attended (public or private).

similar to that of multiple experiments in an experimental design; in other words, the goal of multiple case study sites is to replicate the findings of one site in another site. He describes two types of replication: 1) *literal*, in which similar results are expected between the sites, and 2) *theoretical*, in which dissimilar results are predicted between the sites, but for reasons the researcher would expect. Given this discussion of literal and theoretical replication in case study research, the model of theoretical replication is best suited to addressing my research question, as I am interested in "contrasting results but for predictable reasons" from the case study sites (Groat & Wang, 357).

Initially a range of criteria were considered for case study selection of architecture programs, including public/private status of the universities, Bachelor/Master program offerings in architecture, geographic diversity, student demographics, level of prestige and rankings of the programs. Although all of these factors are worthwhile considerations, none seemed to wholly capture the intent of this research and I perceived the generated list of potential case study sites to be somewhat arbitrary. At this point, a final criterion was considered, which was the notion of an architecture program's *organizational habitus*, that would make sense of and give purpose to the case study selection process.

As described in Chapter 2, McDonough (1997) adapted Bourdieu's concept of an individual's habitus to the concept of organizational habitus in her research on college destination, to account for the influence that a student's high school would have on her college selection process. In the present research, the organizational habitus of each architecture program under study is recognized and operationalized as a force that influences students' experiences. The organizational habitus is not necessarily operating explicitly, but rather is perhaps best understood in this context as another component of the hidden curriculum. Using organizational habitus as a criterion to select case study sites, a distinction can be made between low and high levels of cultural capital that organizations hold. In addition to considering the criteria described above, I selected two schools of architecture for study with each representing differing amounts of cultural capital and organizational habitus; School A having a habitus with a relatively high amount of cultural capital and School B with a relatively low amount of cultural capital.

There are quantitative and qualitative measures that can at least partially describe organizational habitus, such as student/faculty demographics, facilities and resources of the program[13], rankings of the universities, and email correspondence among students, faculty and staff of the architecture programs. All of these factors contribute to the image each school is projecting to prospective and current students and serve as descriptors of each school's organizational habitus. Chapter 4 will describe in detail the differences between these two universities and their respective architecture schools on these measures of organizational habitus.

In addition to representing two variations of organizational habitus, these two universities have also been selected because of my familiarity with them. I have had personal experiences and prior knowledge of these two schools that I have not had with any other architecture programs. Although this research was conceptualized previously as being conducted at four case study sites, I believe it is a stronger, more comprehensive analysis with the selection of these two schools in particular. In this research, my goal is depth, not breadth, to understand, absorb, and then thoroughly document and analyze the social workings, experiences, and interactions at different programs of architecture; this is best accomplished at these two particular universities.

Description of Larger Context of Case Study Sites

Chapter 4 will document in detail the descriptive characteristics of the architecture programs and larger universities of both case study sites, School A and School B. This section will provide background information on the cities in which Schools A and B are located. The precise location of these two case study sites will not be revealed in order to protect the anonymity of the two schools, but rather general descriptors will be offered to understand how the larger contexts of these two sites differ.

School A is located in a mid-western U.S. town with an estimated population of 113,000 in 2006.[14] The town is predominantly white with the largest minority group

[13] The architecture, planning and landscape architecture programs at School B started the Spring 2008 semester in a new $22 million building designed by an internationally renowned architect. Prior to this, the architecture program was scattered among three dilapidated buildings. The research took place in the new facilities, but since it focused on graduating students, who have spent the majority of their education in the old buildings, their responses may have been unduly influenced the old surroundings rather than the new.

[14] Unless otherwise noted, the source for all statistics of the two locations is: http://quickfacts.census.gov/qfd/states (Retrieved 08.05.10).

being Asians at 12% of the population, which is in contrast with the overall state's demographics where African- Americans are the largest minority group at 14% of the population. A large proportion, almost 70%, of this town's residents who are 25 or older have obtained at least an undergraduate degree, compared to only 22% of the state's population who have done so. This proportion of the state's residents who have achieved an undergraduate degree is comparable to the national average of 24%. The median yearly income for residents of the town was $46,000 in 1999.

School B is situated in an urban southwestern U.S. location with a population of 505,000 in 2006. The state in which School B is located is considered a majority-minority state, a situation in which less than 50% of the state's population is white.[15] The largest minority groups in the state are Hispanics at 42% and Native Americans at 10%; statistics for these groups in the city are 40% Hispanics and 4% Native Americans. The percentage of adults 25 years or older in the city who have obtained an undergraduate degree is slightly higher than the percentage of these people in the state who have done so: 32% compared to 24%. Yearly median income for city residents was $38,000 in 1999.

Selection of Participants

All graduating architecture students (undergraduate and graduate) at the two case study sites were asked to participate in this research. An email request was sent to each program's architecture student listserv, offering them a brief description of the research and requesting their participation in it. Each school's program director had agreed to my distributing the written survey either in studio or a particular class. The email requested students' participation with the written survey as well as with an in-person interview (see original email request in Appendix A). Emails were sent two weeks prior to my arrival at the case study sites. Initially, only eight students at School A and two students at School B volunteered to participate in interviews, which was out of a possible total 130 graduating students at School A and 33 graduating students at School B. The desired number of student interviews at each school was a minimum of 15.

[15] Information retrieved from http://www.census.gov/newsroom/releases/archives/population/cb09-76.html (07.13.10). There are a total of four states in the U.S. with majority-minority status assigned to them by the federal government.

Requests for faculty participation in interviews were also sent in an email to all tenured or tenure track studio instructors at both schools (see original email request in Appendix A). Initially, only three faculty from each school agreed to an interview out of a possible total 17 at School A and nine at School B. One faculty member from each school replied that they would not be able to participate. For the remaining five faculty members at School B, I sent individual follow-up emails, to which two of them responded that they would participate. I was able to approach in person two of the remaining three faculty to ask for their participation, to which they happily obliged. At School A, I approached the program director for help in recruiting additional faculty, which resulted in three more interviews.

In order to increase the number of student interviews at School A, I employed a snowball sampling technique by asking students and faculty, who had already participated in an interview, for their recommendations of which students I should contact for an interview, who in their opinion would be "interesting" for me to talk with. I also asked them to share with me which students they perceived to be most successful and which students they perceived to be struggling, as I wanted to interview students from both ends of the spectrum. Of the one faculty and three students I asked these questions of at School A, none were comfortable naming those students who were struggling. They all gave me recommendations of students they perceived to be successful and that led to an additional five student interviews being conducted.

I used the same snowball sampling strategy at School B to increase the number of student interviews and got much different responses to my request for names of students who were perceived to be struggling and successful. Out of the four faculty I asked this of[16], only one, Garrett, was uncomfortable naming those students who he would classify as struggling or successful. His interview is discussed at length in Chapter 4. The other three faculty at School B did not hesitate to offer names of both struggling and successful

[16] At School B, I happened to interview faculty first and did not need to ask students for their recommendations of what other students I should interview, as I had already had enough suggestions from the faculty. Also at School B, a number of students whom I interviewed spontaneously suggested other students for me to interview without my asking. They would then introduce me to the suggested student, who I would then interview.

students; this is in contrast to School A, where neither faculty or students felt comfortable identifying students as "struggling."

Using this strategy to increase the number of participants, I completed a total of 15 student interviews (7 graduate students, 8 undergraduates) at School A and 19 student interviews (9 graduate students, 10 undergraduates) at School B. I interviewed a total of six faculty at School A and seven faculty at School B. These proportions were not satisfactory as School A is the larger program and therefore should have larger student and faculty representation in the final analysis. Also, I had previously restricted myself to only interviewing full-time, tenured/tenure track studio faculty; after realizing that both schools had long-term part-time adjunct studio faculty, I decided to capture their points of view as well. I asked for recommendations from both program directors on which adjunct studio faculty had been teaching at their schools the longest and requested interviews with them. I conducted interviews with three part-time faculty at School B late in the spring of 2008, for a total of 10 faculty interviews there. I returned to School A in the spring of 2009 to conduct additional student and faculty interviews, resulting in a total of 12 faculty interviews. Demographics of the final faculty samples are listed in the table below.

	Adjunct	Tenured/ Ten.track	Male	Female	Racial/Ethnic minority	Total interviews	Total possible[17]
School A	5	7	7	5	1	12	23
School B	3	7	6	4	2	10	12

Table 3.1: Faculty interviews sample demographics

When I returned to School A in 2009 to conduct more student and faculty interviews, I was specifically looking for particular student populations whom I had not interviewed in 2008. After examining the demographics of my 2008 School A student interview sample, I realized that I was especially lacking in males (particularly 2G) and Asian-American students. Rather than send out a mass email to all graduating architecture students, I employed the help of School A faculty and students to specifically target these populations to request their participation in this research. After this round of

[17] Faculty who did not teach studio regularly or who were temporary instructors or fellows were not included in the final number of "Total possible" faculty at each school.

interviews, I had completed a total of 29 student interviews from School A. Demographics of the final student samples from Schools A and B are listed in the table below.

	UG	2G	3G	Males	Females	Racial & Ethnic Minorities[18]	Total interviews
School A	14	7	8	14	15	9	29
School B	10	4	5	10	9	5	19

Table 3.2: Student interviews sample demographics

At the end of the first round of data collection in Spring 2008, both schools announced their student award winners, although in different manners. At School A, it was posted prominently on their website; at School B, it was announced in an email from the program secretary to all architecture students. Looking at these lists, I realized that at School A I had interviewed seven of the total 26 award winners. Of these seven students, four had initially volunteered on their own and the other three were recommended by faculty and students as "successful" students. Had I not conducted 14 additional interviews in 2009 at School A, the student interview sample could have been skewed by the high number of award winners in the sample. At School B, there were a total of 21 award winners of which I had interviewed four students; only one had initially volunteered on his own, with the other three recommended by faculty as "successful" students.

Data Analysis

Data analysis consisted of quantitative analysis as the primary method and qualitative analysis as the supporting method. Quantitative analysis was first employed on the survey data to identify major themes among student groups with interview material used to support these quantitative findings. SPSS (version 17) was used for quantitative analysis to conduct both descriptive and inferential statistics, including Confidence Intervals, Cluster analysis, Chi-square, one-way ANOVAs and Multidimensional scaling (MDS).

[18] This number includes 5 International students, 3 Asian-American students and 1 Hispanic student for School A. At School B, this number includes 4 Hispanic students and 1Native American student.

Students were grouped according to four factors of interest for quantitative analysis: levels of cultural capital, gender, program type and race and ethnicity. K-means cluster analysis was used to create groups of students based on their levels of cultural capital, producing a three cluster solution, given their responses to 11 measures of cultural capital on the survey. This analysis will be discussed at length in Chapter 5. Outcome measures were responses to survey questions of *Perceived & Ideal curriculum, Studio experiences, Satisfaction, Problematic experiences,* and *Goals & Motivation*. Sample sizes for each case study site are listed in the tables below, by gender, program type, cluster and race and ethnicity. Separate analyses were conducted for each of the four factors of interest (Cluster, Gender, Program type and Race and Ethnicity) and will be presented in Chapters 5-8.

	N	Total possible students[19]	Response rate
School A	81	130	62.3%
School B	46	33	100%

Table 3.3: Response rates at Schools A and B

	N	Males	Females	UG	2G	3G	Clus 1	Clus 2	Clus 3	Missing Clus
School A	81	38	43	46	21	14	27	17	29	8
School B	46	26	20	31	8	7	17	16	6	7

Table 3.4: Gender, Program type, Cluster demographics for student samples at Schools A and B

	N	Afr-Am.	Hispanic	White	Asian-Am.	International students	Native Am.	Missing
School A	81	3	3	51	7	13	0	4
School B	46	1	11	25	0	1	7	1

Table 3.5: Race and Ethnicity demographics for student samples at Schools A and B

[19] There is a discrepancy to explain between the Total students sampled and the Total 2008 exiting School B students. Since the program was much smaller at School B than at School A, I invited all students who were in their final studio to participate in the research at School B. Therefore, not all of the students who were sampled in Spring 2008 graduated in that semester, but rather were on schedule to graduate within the following year.

Chapter 4

Organizational Habitus

Introduction

This chapter will describe in detail each case study site, with particular attention devoted to defining each program's organizational habitus. The concept of organizational habitus was introduced and defined in Chapter 1, which outlined the theoretical framework of this research. To reiterate, organizational habitus is a concept that has been adapted from the social reproduction theory of Pierre Bourdieu and refers to "the class-based dispositions, perceptions, and appreciations transmitted to individuals in a common organizational culture" (Horvat & Antonio, 1999:320). For the purposes of this study, the organizational habitus of each case study site will be discussed on two scales: (1) of the larger university and (2) of the architecture program of interest. The former will be accomplished by citing a variety of descriptive statistics of the entire university, such as information on university resources, student demographics, and graduation rates. Defining the organizational habitus on the smaller scale of the architecture programs will rely on survey data, interviews with students and faculty as well as email correspondence between the administration and students.

Organizational habitus: Scale of the University at Schools A and B

Before addressing the specifics of each school's architecture program, the overall context of the larger university within which these programs are operating will be addressed. As was discussed in Chapter 3, one of the reasons that these two case study sites were chosen for this research was because of their contrasting levels of organizational habitus, with School A exhibiting a relatively high amount of cultural capital and School B exhibiting relatively lower cultural capital. This section will

operationalize organizational habitus in terms of university resources, ranking, and student demographics, highlighting the sharp contrasts between Universities A and B[20].

University Descriptives

All statistics cited in this section are from the 2007 U.S. News and World Report College Rankings, unless otherwise noted.[21] Universities A and B share little in common, except the generic characteristic that they are both public universities. However, even that similarity has a caveat for University A is known to be a "public ivy," in that it has the prestige and many of the advantages of an Ivy league school, but at the cost of a public university (Moll, 1985). This notion is supported by its national ranking of 25, compared to University B, ranked as a third tier university. Also, University A is much more selective as is evidenced by its acceptance rate of 47% compared to University B's of 73%.

Rather than present financial and resource information for each school in actual numbers (e.g., endowment in dollars, number of library holdings, etc.), a comparison instead will be made between the two schools in terms of relative ratios. University A has greater numbers for all categories under consideration, ranging from tuition costs to the number of computers available to students; Figure 4.1 below displays how much more University A has compared to University B in terms of ratios. All points for University B are held at a constant of one; points for University A correspond to how many times greater the numbers are for University A compared to University B. For instance, on the issue of *Endowment*, University A has over 14 times the amount of University B; on the issue of *Instate Tuition*, University A costs over two times as much as University B, etc. The only item in which the two schools are comparable is *Room/board* with University A costing only slightly more than University B. Otherwise, there are vast differences in all other categories, highlighting the gaps in financial means and resources between Universities A and B.

[20] The terms *Universities A* and *B* are used in this section to refer to the entire university; the terms *Schools A and B* refer specifically to the schools of architecture within Universities A and B.
[21] http://colleges.usnews.rankingsandreviews.com/best-colleges (Retrieved 11.21.07)

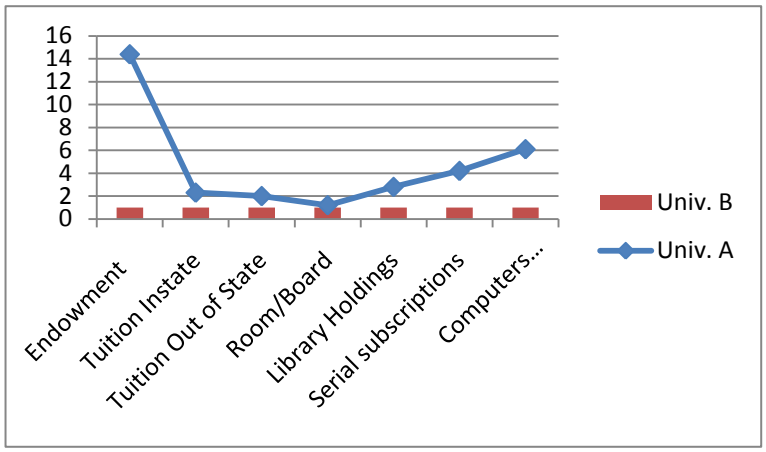


Figure 4.1: Comparison of resources between Universities A and B

The obvious differences between these two schools illustrated in Figure 4.1 are the potential opportunities and advantages a student of University A would have over a student of University B. Furthermore, when data on full time to part time faculty and faculty to student ratios are compared for the two schools, shown below in Table 4.1, again University A has the more desired scenario compared to University B.

	FT faculty	PT Faculty	Faculty:Student ratio
Univ. A	80%	20%	1:15
Univ. B	63%	37%	1:19

Table 4.1: Comparison of faculty at Universities A and B

The following section will further address issues of organizational habitus for each case study site, but will do so by citing statistics of the student body at each university. Organizational habitus needs to be understood not only in terms of what resources a university holds, but also in terms of who the individual students are attending that university. Descriptions of the student bodies for Universities A and B to be presented include demographics, factors typically considered in admissions, as well as other descriptive characteristics such as proportions of students who attend full-time compared to part-time, graduation rates and freshman retention rates.[22]

Student Descriptives

Basic demographic information on ethnicity and gender are listed below in Figure 4.2. University B has the smaller proportion of white students of the two schools, with a substantial Hispanic population. This is not surprising as the state in which University B

[22] These statistics refer only to undergraduates at both schools.

is located is considered a majority-minority state, a situation in which less than 50% of the state's population is white.[23] The gender distribution is exactly even at University A, but University B has slightly more men than women.

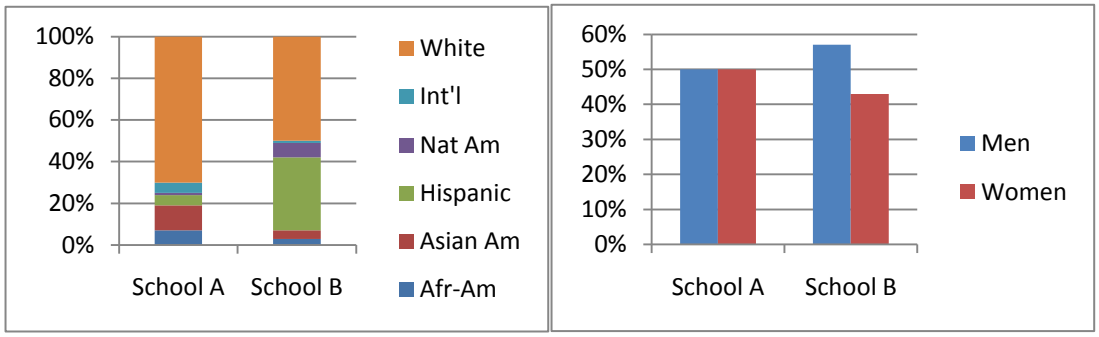


Figure 4.2: Race and Ethnicity demographics (left) and gender demographics (right) comparing Universities A and B

In terms of the quantitative factors commonly considered for undergraduate admission, University A students have the higher scores shown below in Figure 4.3. These differences of entering students' high school GPA and SAT scores (combined scores of Verbal and Math, highest possible total 1600) further support the notion of University A as a prestigious, selective school and University B as a less selective public university, thereby open to a larger proportion of the population.

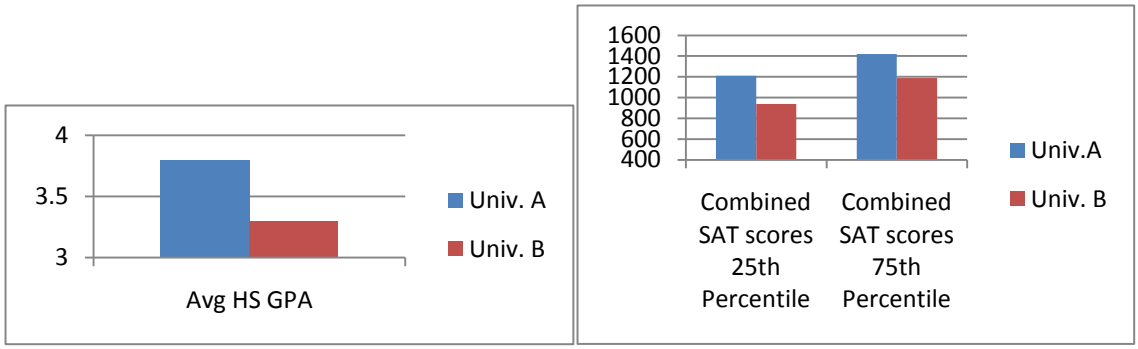


Figure 4.3: Comparison of University A and University B entering students on high school GPA (left) and Combined Math and Verbal SAT scores (right)

The final figure for this section presents additional information on who the students are attending each university, demonstrating substantial differences between the University A and University B students on all factors considered. Three of the factors listed in the figure below (Full Time students, Part Time students and UGs over age 25),

[23] Source: http://www.census.gov/newsroom/releases/archives/population/cb09-76.html (Retrieved 07.13.10). There are a total of four states in the U.S. with majority-minority status assigned to them by the federal government.

are indicators of whether a school has a more traditional or non-traditional student body. University B has a smaller proportion of Full time students, a larger proportion of Part time students, as well as a greater percentage of undergraduate students over the age of 25, all of which paint a picture of a non-traditional student body at University B. Also, given the greater proportion of University B students who receive Pell grants compared to University A (28% compared to 12%), it follows that students at University B are less likely to be as financially advantaged as those at University A.

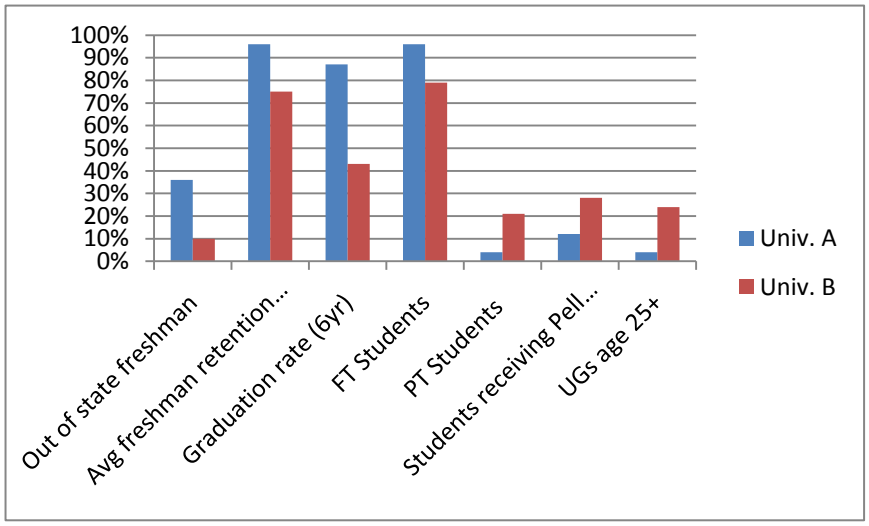


Figure 4.4: Comparison of student descriptors at Universities A and B

The freshman retention rate and six year graduation rates are much more favorable at University A. University B's six year graduation rate is dismally low at 43% compared to 87% at University A. Both of these statistics refer to what is termed in the sociology of education literature as *student persistence*. Previous research on student persistence, which explores the contributing factors to students not finishing college, often considered both student and organizational attributes. One of the findings from this large body of research has been that the institutional persistence rates for students are positively related to the selectivity of a university (Marcus, 1989), which would support the findings here for Universities A and B. Other research has focused on the connection between a university's financial resources, which support instructional, academic and student support expenditures, and student persistence, finding a positive relationship between the two factors (Ryan, 2004; Winston, 1999). In Figure 4.1, University A's endowment was over 14 times larger than University B's, which may be another factor

contributing to the difference in freshman retention rates and six year graduation rates between the two schools. Although an investigation of student persistence rates at these two universities is beyond the scope of the present research, referencing the large difference in graduation rates and freshman retention between the two schools contributes to an understanding of the organizational habitus for each university.

All of the statistics presented for each university thus far confirm the description of University A as a prestigious, well-resourced school with a predominantly white, traditional student body in contrast to University B as a much less selective public university, with limited resources and a racially diverse, more non-traditional student body. Although I am limited in making conclusions regarding the entire student populations at Universities A and B since this research focused specifically on schools of architecture, clearly these descriptive statistics of the larger universities and their student bodies suggest University A is a relatively more privileged institution than University B. Now that a foundation has been laid to outline the organizational attributes of each university, the following section will continue to describe and define the organizational habitus of each university, but will do so at the scale of the architecture program.

Organizational Habitus: Scale of the Architecture Programs at Schools A and B

This section will now document the organizational habitus of each architecture program at Schools A and B. A variety of data will be referenced to create as rich a picture as possible of the atmosphere and workings of each program. There will be survey data analysis, supported by student and faculty interviews, and documented email correspondence between the administrations and students of each school.

All Graduating Architecture Students Descriptions

To begin, basic demographic information will be outlined for each group of architecture students. Comparisons will be made, if appropriate, to the demographics of the larger university populations presented earlier in this chapter. Figure 4.5 below graphically presents the racial and ethnic and gender distribution for all 2008 graduating

architecture students[24]. School B's distribution for its architecture students below looks quite similar to its university's overall racial and ethnic distribution (see Figure 4.2), but the gender distribution of the architecture students has a much greater proportion of males. The distribution of architecture students at School A differs from the overall distribution of the university in terms of race and ethnicity, but not gender (see Figure 4.2). The architecture students have a smaller proportion of African-American students and a much larger proportion of International students when compared to the overall university.

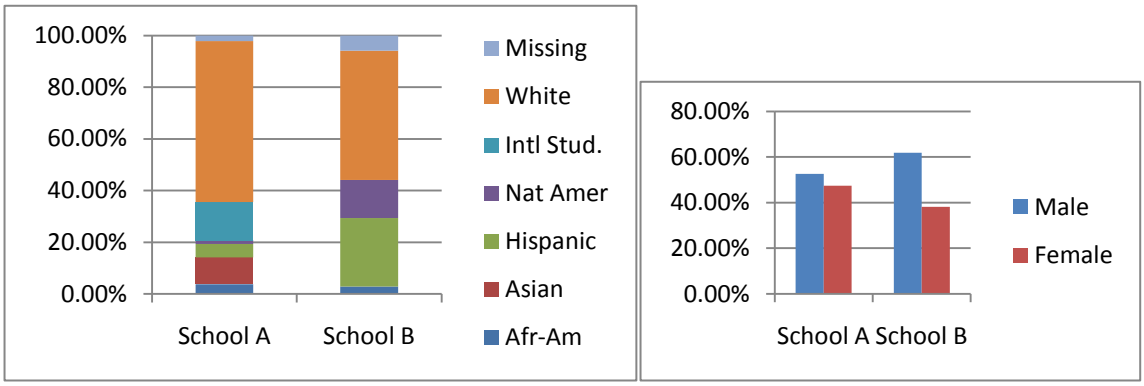


Figure 4.5: Demographics of Race and Ethnicity and Gender of all 2008 graduating architecture students from Schools A and B

Architecture Student Sample Descriptions

This section presents information on survey responses from the sample of students who participated in the research at School A (N=81) and School B (N=46). Survey items that measured students' levels of cultural capital, their means of financial support, and their participation in work outside of the university will be outlined to highlight key differences between the two schools' samples.

Survey Data: Measures of Cultural Capital

The survey contained 11 questions to specifically measure a student's level of cultural capital. These measures included parental levels of education, parental occupations, participation in cultural activities during childhood and whether the high

[24] This information pertains to all graduating architecture students, not just the sample who participated in this research. Program secretaries from Schools A and B provided me with this demographic information for all 2008 graduating architecture students.

school they attended was public or private[25]. Responses will be presented in aggregate form for each school in order to compare overarching patterns of difference between the student samples of School A and School B.

On survey questions of parental education, students were asked to select from a list of six categories (ranging from *Some grammar or high school* to *Graduate degree*) the highest level of education each parent had attained. Responses in percentages for each school are listed below in Figures 4.6-4.7 with clear differences between the two samples. One-half of School B students sampled reported their fathers did not attain a four-year college degree, compared to only 20.9% at School A. The difference is not as great, but still substantial, when comparing mother's highest levels of education at the two schools; at School B, 41.3% of students have mothers who have not attained a four-year college degree, whereas at School A, it is only 28.4%. Similarly striking differences emerge when comparing proportions of those whose parents have completed college degrees or advanced graduate/professional degrees. Again, School A has a greater percentage of parents who have completed at least a four-year degree, with 76.5% of fathers and 70.3% of mothers having achieved this. At School B, only 43.4% of fathers and 56.6% of mothers have achieved at least a four year degree.

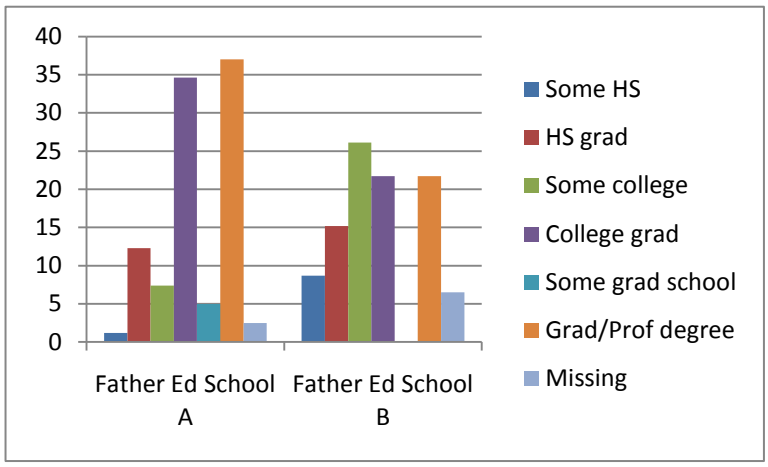


Figure 4.6: Comparison of fathers' levels of education at Schools A and B

[25] An analysis of parental occupations will not be addressed as too many of these items had missing data.

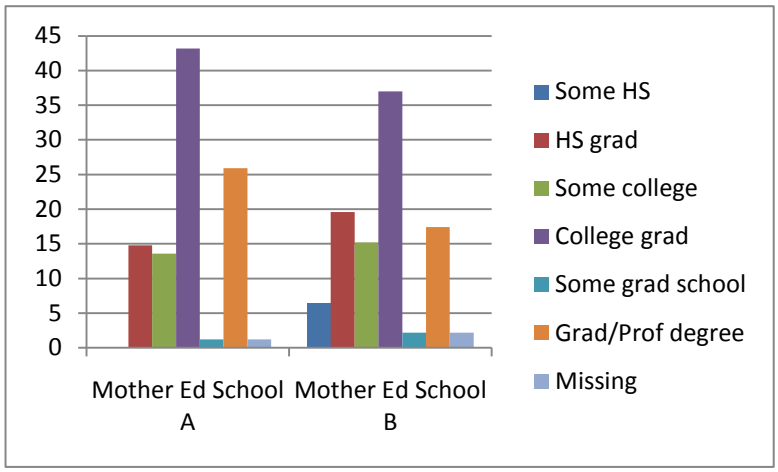


Figure 4.7: Comparison of mothers' levels of education at Schools A and B

Another measure of cultural capital from the survey was a question of whether the student's high school was public, religiously affiliated private or non-sectarian private. Interestingly, this was the only cultural capital measure that had very similar responses from both schools, as seen in Table 4.2 below. Almost 20% of students' sampled from both programs attended a private high school, which is much greater than the national average of 6.7% of students who attend a private high school.[26] These proportions are especially surprising for School B students at first glance, but some background knowledge of local private schools in the city of School B may offer some explanation. Approximately ¼ of all graduating students from a prominent non-sectarian private high school located within the city attend School B.[27] Also, a local religious private high school is listed as one of the top ten "feeder high schools" for School B[28], meaning they provide School B with a substantial proportion of the entering freshman class. Perhaps School B's architecture students' higher rate of attending a private high school may be at least in part attributed to this somewhat unique situation of large proportions of these private high school graduates attending School B.

[26] Source: http://nces.ed.gov/programs/projections/projections2017/tables/table_01.asp?referrer=list (Retrieved 08.11.09)
[27] This statistic refers to graduating classes of 2006-2009. Information obtained from the non-sectarian private school's website, not to be disclosed to protect anonymity (Retrieved 07.28.10).
[28] This statistic refers to the 2008 entering undergraduate class. Information obtained from School B's website, not to be disclosed to protect anonymity (Retrieved 07.28.10).

High School Attended	School A%	School B%
Public HS	80.2	80.4
Religious Private HS	8.6	8.7
Non-Sectarian Private HS	9.9	10.9
Missing	1.2	0

Table 4.2: Type of high school attended for School A and B samples

There were two additional questions to gauge a student's level of cultural capital regarding extracurricular classes/lessons and cultural activities in which the student may have participated during childhood. On the question of extracurricular activities, students were asked the following: *During the course of your childhood (birth – 18), how many times were you signed up for the following classes/lesson programs outside of school?* The four classes/lesson programs were: *Art, Music, Dance* and *Creative Writing*; the response choices were *Never, 1-2 times, 3-4 times, 5 or more times*. Student responses from each university are presented in the Figure 4.8 below.

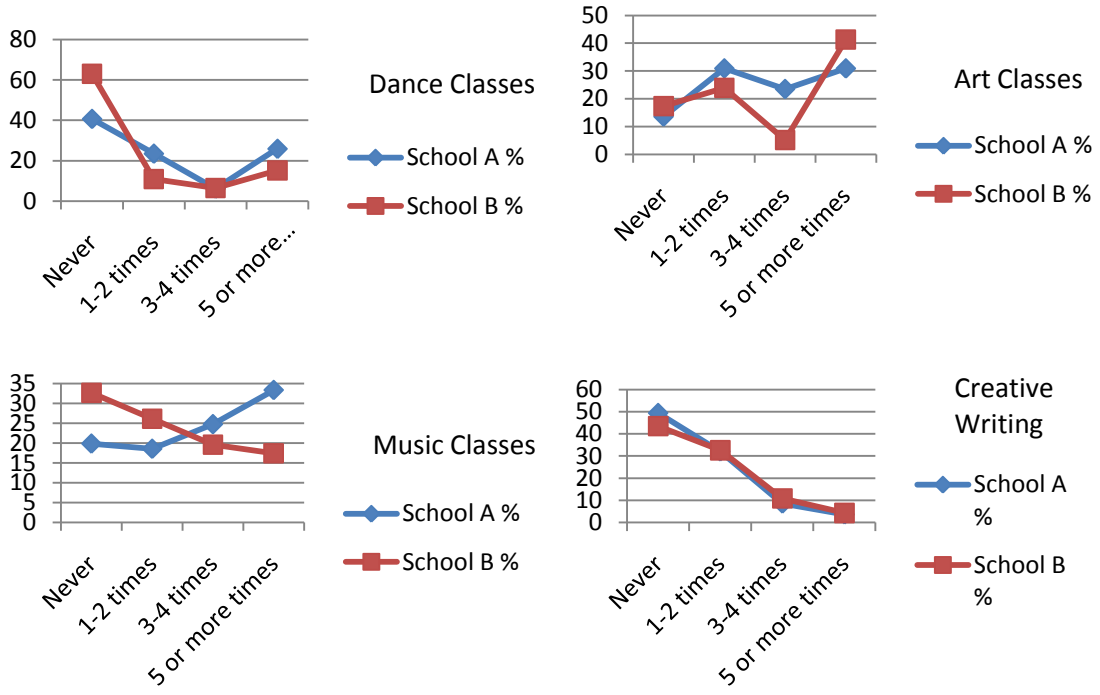
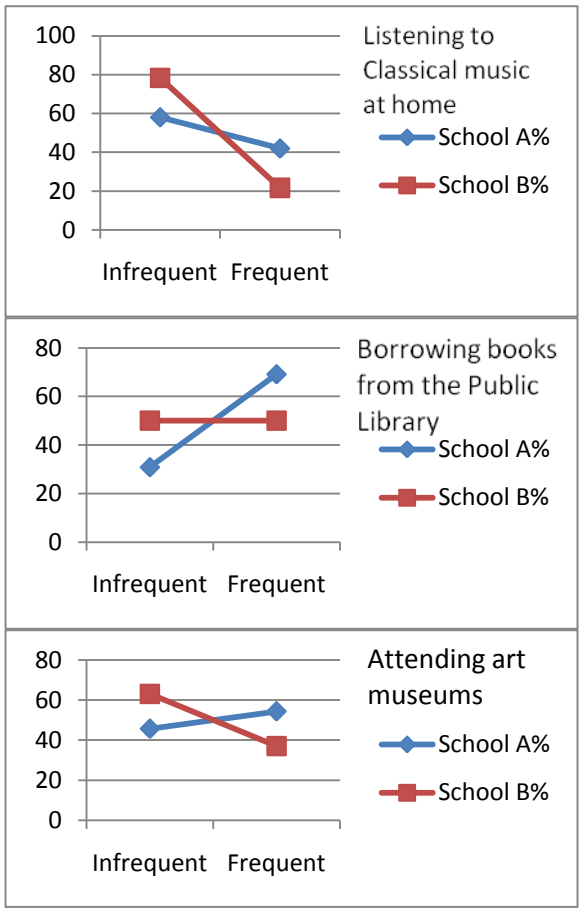


Figure 4.8: Levels of participation in cultural activities comparing samples of School A and B

Levels of participation in *Art* and *Creative Writing* were comparable for the two programs, but differed slightly for *Dance* and dramatically for *Music classes*, with a

much larger proportion of School B students responding that they *Never* participated in these classes. A similar pattern of School A students participating more than School B students was found for responses to the following question of participation in cultural activities. The question asked, *During the course of your childhood (birth – 18), how frequently do you recall the following activities happening?* The five items were: *Your family listening to classical music in your home, Borrowing books from the public library, Attending art museums/galleries, Attending plays/performances*, and *Being encouraged by your parents to read books outside of school*. Possible responses were: *Not at all, Only Occasionally, Somewhat frequently*, and *Quite often*. To present findings in a form that most effectively demonstrates the difference in participation rates between the two schools, the four response categories have been collapsed into two categories, titled *Infrequent* or *Frequent* participation (see Figure 4.9 below).



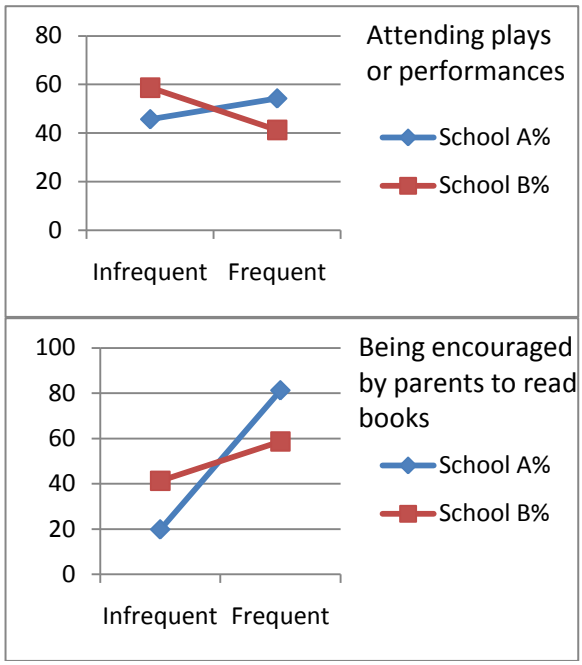


Figure 4.9: Comparison of participation in cultural activities between samples of School A and B

Responses for all five questions follow the same pattern of School A students reporting they participated in the activities more frequently than the School B students. These patterns of responses provide clear support for the notion that School A students have acquired a higher level of cultural capital, using these particular measures as a reliable indicator of cultural capital [adapted from DiMaggio (1982), Hearn (1991), and Karen (2002)] throughout their childhood than School B students. These findings, combined with the descriptive of each university presented in the previous section, further reinforce the notion that School A has an organizational habitus imbued with more cultural capital than School B.

There were two final items on the survey that were not intended to be explicit measures of cultural capital, yet they offer an important contribution as they asked about students' means of financial support during their schooling. The first question asked students, *To what extent have you made use of the following means of financial support during your present education?* Students selected their responses from a four-point likert scale: *Not at all* (1), *Minimally* (2), *Somewhat* (3), and *Very much* (4). Mean responses are shown in the table below, with the statistically significant differences ($p<0.05$) between the two groups being with how reliant they have been on *Work* and on *Parental*

support in bold. School A students are more reliant on their parents for financial support and School B students are more reliant on working for their financial support.

	School A	School B
Loans	2.83	2.68
Grants/Scholarship or Graduate Assistantship	2.84	2.82
Work*	**2.11**	**2.89**
Parental support	**2.78**	**2.21**
Personal savings	2.39	2.23
Other	1.33	1.37

Table 4.3: Mean responses to questions of *Financial support*
Bold: p<0.05; Bold*: p<0.001

The next question regarding financial support was a follow-up to the previous item and asked, *If you have worked outside of school **during the school year**, while pursuing your present degree, for how many years of your degree program did you work?* The phrase "during the school year" was in bold to be certain students were not referring to summer employment. If students did not answer this question, it was assumed that they did not work outside of school during the school year. Table 4.4 below presents a 2x2 matrix comparing school membership with whether students worked or not. The chi-square analysis was significant ($p<0.001$) for this distribution, with a far larger proportion of School B students working compared to School A. This distribution highlights a tremendous difference between the two student samples and the atmospheres of the schools, supporting the findings from Table 4.3 that a School A student is more likely to be reliant on parental support and a School B student is more likely to be reliant on working for financial support.

	Worked	Did not work	Total sample size
School A	33	46	79
School B	39	7	46

Table 4.4: Comparison of how many School A and B students worked during the school year

Survey Analysis: Aggregate Analysis of Perceived Curriculum

In evaluating their curriculum, students were asked to assess the extent to which they perceived particular subject areas to be emphasized in their programs, with choices

on a four point scale: *Not at all emphasized* (1), *Minimally emphasized* (2), *Somewhat emphasized* (3) and *Strongly emphasized* (4). Mean responses to questions of *Perceived curriculum* from the two schools were overall quite similar (see figure below) with the largest difference being between their perception of emphasis on *Theory and Criticism*, with School A students perceiving much more emphasis than School B students. Out of 14 items, seven produced statistically significant differences ($p<0.05$) and are marked with asterisks in the figure below. School B perceived more emphasis on *Urban design, Architectural history, Historic preservation,* and *Programming,* whereas School A perceived more emphasis on *Theory & criticism, Drawing & graphic skills* and *Socio-cultural issues.*

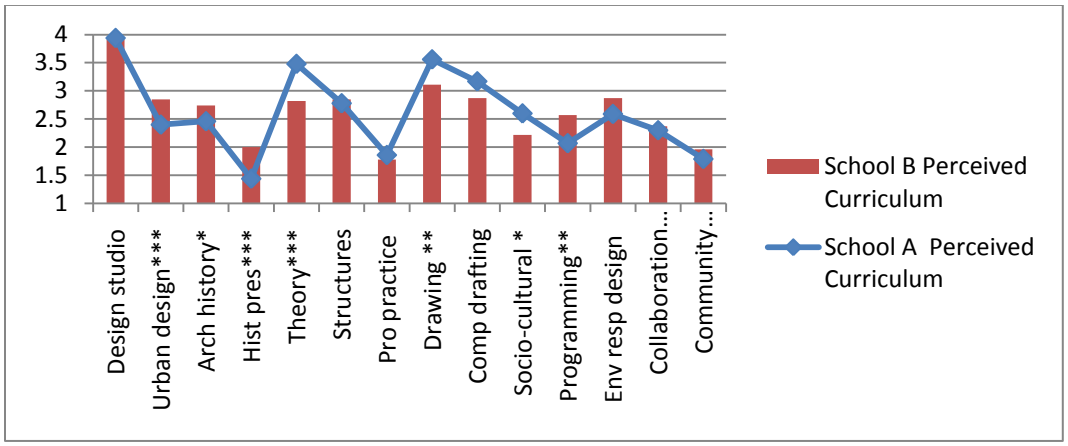


Figure 4.10: Comparison of School A and B responses to curricular emphases in aggregate form
: p<0.05, **: p<0.01, ***: p<0.005

Even though there is a statistically significant difference between School A and School B students' mean responses on how much they perceive *Historic preservation* in their curriculum, this aspect is still rated quite low by both schools. There is some overlap between students responses from both schools in that they all agree that *Design studio* is the most emphasized and *Professional Practice, Historic Preservation,* and *Community design work* are the least emphasized parts of the curriculum at their schools.

If the curricular emphases for School A and School B are reordered in descending value as in Figure 4.11 below, there are three zones of emphasis to be identified: the areas most emphasized are shaded in blue, the areas somewhat emphasized are shaded in pink

and the areas minimally emphasized are shaded in green[29]. The three areas of emphasis at School A are almost equally distributed, whereas at School B, the most and least emphasized areas are very small with a very large middle area of emphasis. Perhaps this difference in perceived hierarchy of curricular emphases may be indicative of a more consistent and clear organizational culture at School A compared to School B.

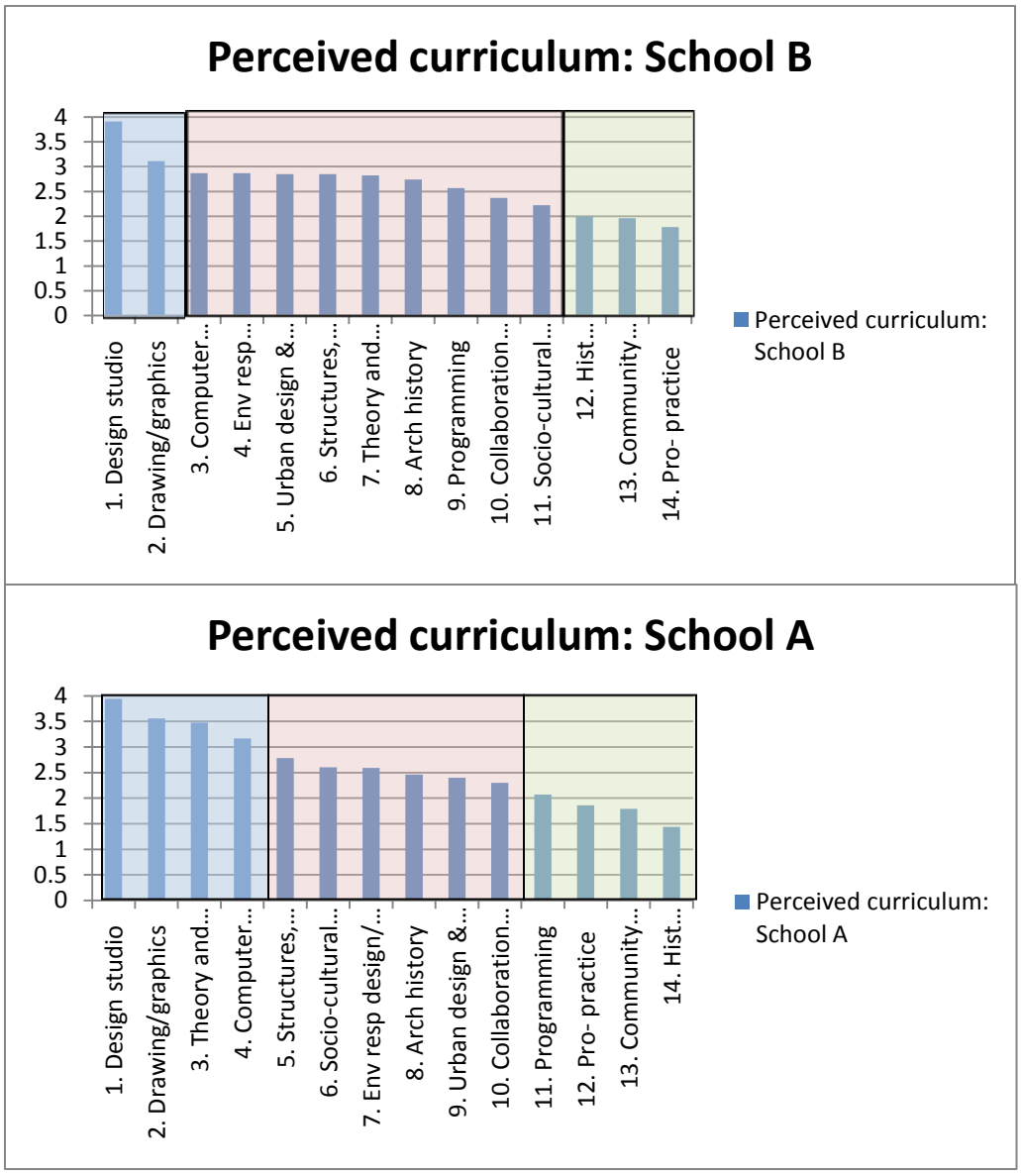


Figure 4.11: Curricular emphases in descending order for Schools A and B

[29] Blue areas = ratings above 3.0; Pink areas = ratings between 2.01 – 2.99; Green areas = ratings between 1-2.00.

Survey Data: Aggregate Analysis of Selecting a University

There was only one survey question that contributed to defining the organizational habitus of each architecture program. This question related to the intention of students' college choices, which has been a subject of interest to researchers who have used a Bourdieuian framework in the sociology of education literature (Hossler et al, 1989; McDonough, 1997). The survey question asked, *What initially attracted you to this particular university?* Students were given a list of 13 items from which to select their top three reasons. Responses are given in aggregate form for each school in the figure below to compare overall percentages for both schools. There are only two items in which the percentages between schools are comparable and both deal with a lack of interest in *Knowledge of current faculty work* and *Desire to work with particular faculty*. Clearly School A students are drawn to their university primarily because of its *Academic reputation*, which is in great contrast to School B students who attended their university primarily because of *Cost*. The next most popular reason for School B students was *Location of university in this city/state*, whereas for School A students it was *Campus atmosphere*. Another large difference between the two schools is the much larger proportion of School B students who selected *Spouse/family considerations* compared to School A students.

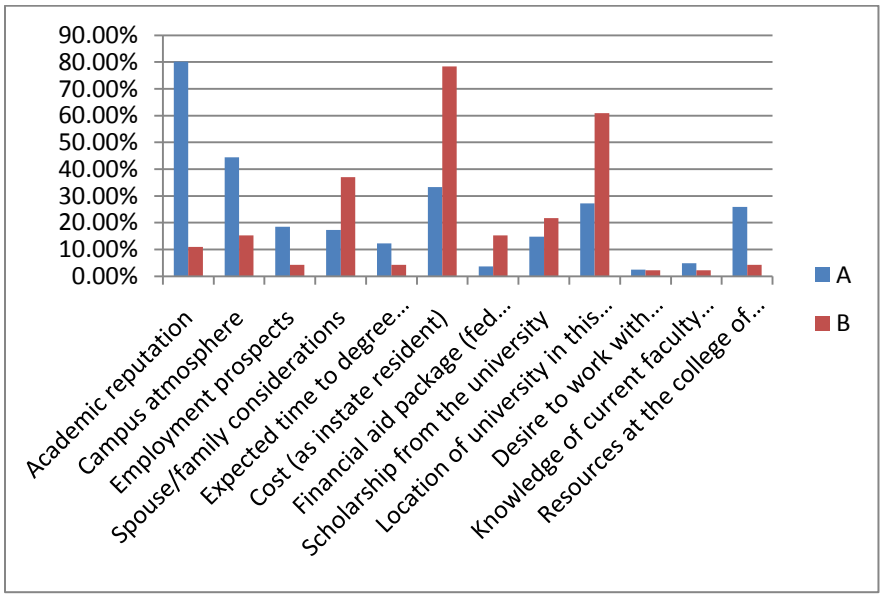


Figure 4.12: ***What attracted you to this university*** **comparing samples of School A and School B**

These survey results corroborate all of the previous findings discussed thus far in this chapter which illustrate the difference in organizational habitus between School A and School B. This particular survey finding suggests that students of School A select their university by choice whereas students of School B make their selection based on financial necessity. This discussion on organizational habitus will continue with additional support from student and faculty interviews as well as email correspondence between students and the administration to further define and describe the two very different atmospheres of these architecture programs.

Student Interviews

There was one interview question that further documents the differences in students' intentions for choosing either School A or School B, thereby contributing to the description of each school's organizational habitus: *Did you apply to other universities besides this one? If so, which ones?* Since it was anticipated that UGs and M.Arch students may use different criteria in applying to architecture programs, these two groups were examined separately both within each school and across schools. The largest differences in whether or not students applied to other programs was found for the graduate students; almost 90% of School A graduate students interviewed responded "Yes" and the same proportion of School B graduate students responded "No."

The School B graduate students explained that the primary reason they did not apply elsewhere was because there were no other architecture schools in the state and they were not interested in moving out of state. One student expressed her regret with making a decision for graduate school based on that criterion, because of the subsequent disappointments she experienced at School B: "…it was inexpensive and convenient for me to go to school here. I would highly encourage people to look around after being here."

The programs most mentioned by School A graduate students were generally competitively ranked architecture programs, with the most frequently mentioned being: Sci-Arc, RISD, Yale, Columbia, Princeton, UCLA, UC-Berkeley, University of Pennsylvania, University of Washington-Seattle, University of Virginia, University of Oregon, and Washington University (St.Louis, MO). When asked why they chose

School A over the other schools to which they were accepted, most said they either were offered a financial package from School A's architecture department that was far superior to what the other schools offered, or they were eligible for in-state tuition at School A, making it the most affordable option. At first, these reasons may seem to contradict the survey findings of School A students overwhelmingly choosing "*Academic reputation*" as one of their top three reasons for selecting School A. However, since School A's academic reputation is comparable to the other schools listed above to which these students applied, it indicates that their primary concern was for their prospective school to be competitively ranked and well-regarded and then the final decision was based on finances. In contrast to the graduate students at School B who did not even apply elsewhere, simply accepting their *only* choice for architecture school in the state.

Half of School B UGs applied elsewhere and more than two-thirds of School A UGs did. The UGs of School B applied to other state institutions in the southwest, such as Arizona State University and University of Colorado. The primary reason they chose School B over the other schools was financial, as they would receive in-state tuition rates. School A UGs applied to a number of the same schools as the School A graduate students including UCLA, UC-Berkeley, and Washington University, as well as Miami University (Oxford, OH). A number of the School A UGs expressed their strong desire to attend School A ever since they were children. One UG explained that it took him three times of applying to School A before he got in, i.e., three years before he was finally accepted. During his second round of applications, he was accepted to RISD, Sci-Arc and Pratt, but he was not satisfied with attending those institutions and was insistent on attending School A.

One of the differences between how the School A and B students talked about selecting a program is that School A was described as something to aspire to and School B was explained as the easiest choice. School B students who were interviewed were predominantly concerned with cost and location; they knew they wanted to study architecture and School B was their only in-state choice. As one particularly disenchanted School B UG student responded to the open-ended survey question, *Please describe your program' greatest strengths*: "They give you a degree." School A students, especially those who grew up in the state, talked at length about how they

always knew they wanted to go to School A. A few School A UG students interviewed had attended community colleges for two years before transferring to School A, because their high school grades were not sufficient for admittance to School A. They purposely chose the route of community college, to get better grades with the intention of transferring to School A, rather than choosing a less selective four-year university immediately out of high school. One of these students, Ivan, favorably responded to an interview question regarding his expectations of School A: "I expected to immerse myself among people much smarter than me and that's what happened."

Faculty Interviews

This section will introduce specific key themes identified in School A and B faculty interviews that contribute to understanding the organizational habitus of each program. There were no explicit interview questions that asked faculty to define the organizational habitus of their institution. Rather, the interviews served to prompt discussions for faculty members to share their unique perspectives on their students and the workings of their particular school, which offer some insight into the organizational habitus of each architecture program. To reiterate, the differences between these two programs in terms of organizational habitus are vast and extend beyond quantifiable measures of size and geographic location to more nebulous qualitative observations of differences in intensity, competition, work ethic, and academic rigor; faculty interviews serve as one avenue to document such qualitative differences. A more extensive discussion and presentation of these interviews, as they relate to students' differing levels of cultural capital, will follow in Chapter 5.

There was one interview question in particular that initiated conversations with faculty in which they carefully considered who the students are in their architecture school and how they interact with the larger system of architectural education at their school: *How important do you think students' backgrounds are, for example, their artistic, cultural or educational backgrounds?* This question, especially at School A, spurred discussions on how backgrounds affect success specifically within architectural education at their institution and how faculty deal with students of various backgrounds. On this question of student backgrounds, there was a common theme among a number of

School A faculty who raised the importance of travel and exposure to different cultures and experiences outside one's "comfort zone"[30] in architecture school. Even when faculty stated they did not know much about their students' backgrounds, they still speculated that the influence of students' backgrounds was potentially a strong one in shaping student experiences in architectural education. School A faculty expressed an awareness of the particular difficulties that students of various backgrounds (referencing specifically class and cultural differences) might have in fitting in to the subculture of architecture. Five out of 12 School A faculty interviews will be discussed at length in the following chapter to further understand the extent to which faculty's conceptualization of student backgrounds shaped their interactions with and expectations of their students.

At School B, the faculty interviews were less unified in their responses compared to the School A faculty, which makes condensing their viewpoints somewhat more difficult for this discussion on organizational habitus. For example, on the question of the importance of student backgrounds, some faculty talked about how an artistic background is advantageous in architecture school and other faculty focused on the importance of travel in architecture school, but no School B faculty members explicitly made any assertions about how having broader cultural exposure might impact a student's education in architecture.

Several themes arose in School B faculty interviews regarding their depiction of students. Firstly, there was the sentiment that School B students, particularly undergraduates, lacked initiative in taking charge of their own educations. This issue will be addressed fully in Chapter 7 which presents analyses of student responses based on program type. Secondly, several faculty members spoke negatively of the state in which School B is located, because of poor public school systems and a lack of interesting architecture to experience. Lastly, the subject of "struggling students" at School B emerged in 50% of the faculty members' interviews, which usually led to a discussion of who should or should not pursue architecture. Even though School B faculty did not make explicit connections between a student's background and success in architecture school, the way in which they spoke of their students may be indicative of an implicit

[30] Many School A faculty used the phrase "comfort zone" in reference to exposing students to new experiences and pushing students beyond their comfortable boundaries; and so it is not attributed to one particular faculty member.

understanding of the extent to which their students are at a disadvantage due to their backgrounds. Chapter 5 will cite four out of 10 School B faculty interviews that are examples of the themes identified here.

Email Correspondence

This section will briefly address the email correspondence that was sent during the time of data collection, August 2007 – May 2008, to the architecture student listserv at both schools. I requested to have access to the emails that students received at both schools in order to have a better understanding of mass communication at the two architecture programs and to document how such communication contributes to the larger organizational atmospheres. The most striking difference between the correspondences gathered at the two schools is from whom the emails originate. School A had completely open access and so I received emails from students, faculty and the administrative staff in the school of architecture. School B only allowed the administration to have access to the student listserv, specifically only two people: the program secretary and the Dean's secretary. All emails I received from School B originated from one of these two women's emails. Even though the message may have been originally composed by the Dean or program director, students would not necessarily know that since the sender's email address would not be the Dean's or program director's.

When I inquired with School B's program director why access to the student listserv was restricted to only two people, she responded that the system was in place to prevent unwanted, inappropriate postings; if a student or faculty had something they wanted to distribute to all students, they would need to submit it to one of the two secretaries for dissemination. The program director did not appear concerned that such restrictions might hinder communication and close off potential avenues for connection among students and also between faculty and students. In fact, she mentioned that unlike students and faculty, she could have access to the student listserv, but she chooses not to.

As a result at School B, when students would mention the numerous emails that they received outlining the rules and regulations for the new building, they were not sure who was sending them. They would assume they were either from the Dean or Assistant Dean, but since the return email address was the Dean's secretary, they could not be

certain. Having two administrative assistants communicate all of the administration's and faculty's messages to the student listserv seemed to be an inefficient system that potentially could contribute to tensions and a sense of distance between students and the administration.

After tracking the emails at both schools for two semesters, coincidentally, both schools' administrations sent out the same number of emails: 131. School A had a total of 221 emails, with 41 originating from students and 49 originating from faculty. The majority of emails at School A from students and faculty fall into one of three categories: job/internship opportunities, upcoming events, and requests for feedback on faculty and fellowship searches. There were no instances of inappropriate usage of the student listserv during this period of tracking. Email correspondence appeared to be used effectively by everyone at School A, as it was intended to be a method of quickly disseminating information to the entire student body.

When evaluating administrative emails, most communication from both schools fits into the broad category of school announcements, including items such as new course listings, lectures, and upcoming events. These messages were neutral in tone, not indicative of any positive or negative feelings on the part of the administration. When considering the emails that did convey a particular tone from the administration, there are large differences between Schools A and B, in that School A had more than double the number of positive toned messages (e.g., congratulations on faculty promotions/student awards, notes of gratitude to students and staff) as School B. Also, these positive messages from School A were clearly originating from a particular person in the administration, usually from the Dean or program director, but occasionally from support staff as well. Such communications serve to promote goodwill among students, in addition to a sense of pride in the accomplishments of faculty and fellow students. One example was an email from the Dean announcing that a School A planning student had earned a "Compassion in Action" award for her work on poverty that was going to be presented to her by the Dalai Lama.

Also, there were no messages originating from the School A administration that conveyed a negative tone (e.g., rules, reprimands), whereas there were three such messages sent from the School B administration. Although three negative emails is a

small amount considering the total 131 messages sent from the administration, they nevertheless convey an authoritative, perhaps even oppressive tone to the students. Chapter 7 cites a number of survey items and interviews with School B students that described the problems they have had with the administration. These emails serve as another source of evidence to support the tensions with the administrations that School B students reported in their survey and interview responses.

Conclusion

Quantitative and qualitative analyses have been presented to compare differences in the organizational habiti of Schools A and B. These two schools differ substantially in prestige level, selectivity, resources, and student demographics, all contributing to a picture of School A as a *school of choice* for high-achieving students and School B as a *school of convenience* for students with limited means. Interviews with students support this notion and also highlighted differences in the individual habitus between School A and B students. In interviews with students at School A, they explained their long-standing desire to attend School A, describing it as a university to which they aspired. In contrast, School B students explained their university as their perceived only option because of its affordability and location. This difference in perceived choices of universities between School A and B students can be attributed to a number of factors, such as the students' financial constraints, academic standing, but also their upbringing, in other words using Bourdieuian terms, their habiti. Compared to School B students, a much larger proportion of School A students come from families in which the parents have completed college degrees and likely were raised in a context where higher education was valued.

Key themes of faculty interviews were introduced to provide qualitative support in building a definition for each school's organizational habitus. School A faculty interviews were characterized by their recognition of the conflict that can arise between a student's background and architectural education, demonstrating an awareness of how class-based differences can shape a student's educational experiences. Although School B faculty did not explicitly make connections between students' backgrounds and success in architecture, it can be argued that they way in which they spoke of their students was

reflective of an implicit judgment of School B students, marked by lowered expectations. In contrast, the organizational habitus of School A is defined by faculty's high expectations of students. These interviews will be presented in more detail in the following chapter which addresses the role of a student's level of cultural capital in shaping socialization in architectural education.

Chapter 5

Analysis by Levels of Cultural Capital

Introduction

This chapter is the first of four to present analyses of the survey and interview data that document architecture students' experiences at the two case study sites of School A and School B, defining groups according to one of the four following characteristics: level of cultural capital, gender, program type, race and ethnicity. This chapter will examine the data with groups defined by the students' level of cultural capital to determine if and how students experience their education differently based on their level of cultural capital.

Categorizing the data according to gender, program type and race and ethnicity for analysis is straightforward as they all have clear definitions and boundaries into which each student will unequivocally belong. Grouping respondents according to their levels of cultural capital is more challenging for several reasons. Firstly, cultural capital cannot be defined by a single variable, and secondly, there is not complete agreement among educational researchers on how to operationalize a person's cultural capital (Dumais, 2002). Based on previous research on the impact of students' cultural capital on their educational choices and experiences [e.g., DiMaggio (1982), Hearn (1991), Karen (2002)], a total of 11 variables were included in the present research to measure students' levels of cultural capital.

This chapter will further describe the origins and purpose of these 11 selected cultural capital variables. Following will be a discussion of the statistical method, K-Means Cluster analysis, which was employed to categorize students into groups based on their differing levels of cultural capital. Results from the cluster analysis will be discussed first with the data in aggregate form, identifying overall patterns of differences between the clusters regardless of what school a student attends. Then data from each school will be examined separately to understand how a student's particular cluster membership may impact educational experiences at his/her own program of architecture.

When appropriate, qualitative data from one-on-one interviews with students and faculty will be cited to support the quantitative analysis. To conclude, there will be a comparative summary to highlight key findings of differences and similarities between the clusters at School A and School B.

Cultural Capital Variables

The 11 survey questions of cultural activities listed in Table 5.1 below were primarily adapted from Aschaffenburg & Maas' (1997) and Dumais' (2002) studies on the effects of cultural capital on educational success. Aschaffenburg & Maas argued that previous research in this area did not adequately recognize the importance of parental cultural resources and instead solely focused on the student's rates of participation in cultural activities. Questions 7 – 11 are examples of what Aschaffenburg & Maas describe as "explicit parental initiative in furthering the cultural repertoire of their children" (578). Although student participation in extracurricular cultural activities (questions 3 -6) does require some parental investment, parents are not as actively involved as they are in the activities measured by questions 7 -11. The bank of questions 3 – 11 can then be conceptualized as two separate, but related subcategories of measures of cultural capital, to be referred to as *Student participation activities* (3-6) and *Parental involvement activities* (7-11).

Survey Question	Possible Responses
1. Father's highest level of education attained 2. Mother's highest level of education attained	1= Some grammar school 2= High school graduate 3= Some college 4= College graduate 5= Some graduate school 6= Graduate degree
During the course of your childhood (birth – 18), how many times were you signed up for the following classes/lessons/programs outside of school? 3. Art? 4. Music? 5. Dance? 6. Creative writing?	1= Never 2= One-two times 3= Three-four times 4= Five or more times
During the course of your childhood (birth – 18), how frequently do	1= Not at all

you recall the following activities happening? 7. Your family listening to classical music in your home? 8. Borrowing books from the public library? 9. Attending art museums/galleries? 10. Attending plays/performances? 11. Being encouraged by your parents to read books outside of school?	2= Only occasionally 3= Somewhat frequently 4= Quite often

Table 5.1: Survey questions measuring cultural capital

Chronbach's alpha coefficient is a measurement of interrelatedness for a number of items in a particular scale (Schmitt, 1996). For all 11 items of cultural capital, Chronbach's alpha was 0.763[31]. For the items only related to *Student participation activities*, Chronbach's alpha was lower, but still considered satisfactory at 0.618; it was highest for the five *Parental involvement activities* with a value of 0.801.

Cluster Analysis

Cluster analysis is a statistical method used to group individual cases into homogeneous subgroups (Hair, 1992). For this research, cluster analysis was used to group individual cases into subgroups based on their responses to the 11 cultural capital measures. Specifically, a K-means cluster analysis was conducted with all respondents from both universities, producing both two cluster and three cluster solutions[32]. The two cluster solution produced two distinct clusters, one with consistently higher cultural capital means and one with consistently lower cultural capital means. Although at first this two cluster solution might have seemed most useful for this research question, the three cluster solution offered a richer, more nuanced description of these students than a simple high versus low cultural capital distinction. In the three cluster solution, interesting differences emerged between Clusters 1 and 2 (and will be discussed further below), which were lost in the two cluster solution that only produced a simple

[31] With possible values ranging from 0 to 1, a higher Chronbach's alpha coefficient value is most desirable in determining interrelatedness. Generally, an alpha of .60 or greater is considered to be an indication of high interrelatedness in social science research (Schmitt, 1996).

[32] SPSS software was used to conduct the K-Means cluster analysis. The K-Means method uses an algorithm that maximizes between-cluster variation while minimizing within-cluster variation. The number of clusters produced is determined by the researcher and ultimately, it is at the researcher's discretion to decide which cluster solution best addresses the research question.

dichotomy of high vs. low cultural capital. The three cluster solution produced enough differentiations between the three groups that it was decided to be the preferred solution compared to the two cluster solution. The final cluster centers (mean responses) for the 11 items measuring cultural capital of the three cluster solution are in Table 5.2 below.

Highest mean responses are noted with the (+) symbol, lowest responses with the (-) symbol and middle responses by (0). Cluster 3 shows the most clear and consistent pattern in that it has the highest mean response on all 11 cultural capital variables; this cluster can confidently be labeled *High cultural capital*. One might expect with a three cluster solution that if Cluster 3 is labeled *High cultural capital* that Clusters 1 and 2 would fit into either the categories of *Low* or *Medium cultural capital*, but that is not the case. On some items, the two clusters have similar means and on other items, they answer quite differently. It is the differentiations in responses between Clusters 1 and 2 on a number of items that reinforces the selection of a three cluster solution over a two cluster solution because in a two cluster solution, these differences were lost.

	Cluster 1 N=44	Cluster 2 N=33	Cluster 3 N=35
Father's education	4.45 (0)	2.52 (-)	5.14(+)
Mother's education	4.23 (0)	2.48 (-)	4.83(+)
Art classes	2.36 (-)	2.48 (0)	3.34(+)
Music classes	2.00 (-)	2.36 (0)	3.40(+)
Dance classes	1.18 (-)	2.39 (0)	2.69(+)
Creative writing classes	1.48 (-)	1.73 (0)	1.89(+)
Listening to classical music	1.91 (0)	1.36 (-)	3.09(+)
Public library	2.70 (0)	2.64 (-)	3.43(+)
Art museums	2.14 (-)	2.39 (0)	3.40(+)
Plays	2.14 (-)	2.27 (0)	3.29(+)
Encourage read books	3.20 (0)	2.42 (-)	3.71(+)

Table 5.2 Final cluster centers (means) for 3 cluster solution

95% Confidence Intervals

The plots below are the 95% Confidence Intervals for parental education[33]. These plots are a useful visual tool to quickly identify when one cluster's population mean is likely quite different from the other two. For this research, these plots provide further evidence for the superiority of a three cluster solution over a two cluster solution. As we will see on a number of measures, there are substantial differences between at least two of the three clusters. For example, in the 95% Confidence Interval Plot of Figure 1.1 for *Father's and Mother's Education,* we see a large distance between Cluster 2 and the other two clusters. The 95% Confidence Interval (CI) for Father's Education for Cluster 2 is 2.18 – 2.85, which translates to their highest level of education being between a *High school diploma* and *Some college*. This is in great contrast to the CI for Cluster 1 on this measure, 4.08-4.83 and the CI for Cluster 3, 4.75-5.53. For both of these clusters, their fathers' highest level of education lies between a *College degree* and *Graduate degree*.

Confidence interval plots for all 11 cultural capital variables are presented below to identify patterns of difference and similarity among the clusters. As we will see in the plots, it is usually Cluster 3 that responds most differently, but for some items (such as *Parental education* and a number of *Parental Involvement Activities*) it is Cluster 2 that is distant from the other two clusters. Again, these differences suggest that a three cluster solution is most appropriate for this analysis as there appears to be three distinct typologies that describe students' levels of cultural capital.

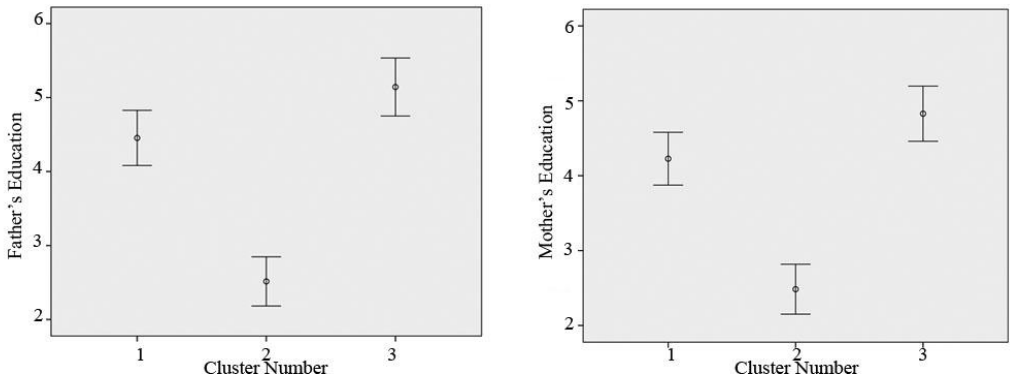


Figure 5.1: 95% Confidence intervals for father's education (left) and mother's education (right)

[33] The definition of a Confidence interval for a mean: "A range of values based on the sample mean that with a designated likelihood, include the population mean" (SPSS, ver.17). The designated likelihood chosen for this research is 95%. Confidence intervals will often be presented as plots as well as a range of numbers in which the population mean is 95% likely to be found.

When we look at the plots for the remaining nine questions of cultural activity participation, we see that Cluster 2 has a lower range of CI values on only two of those items: *Listening to Classical music* and *Encouraged by your parents to read books outside of school* (see Figures 5.2-5.3).

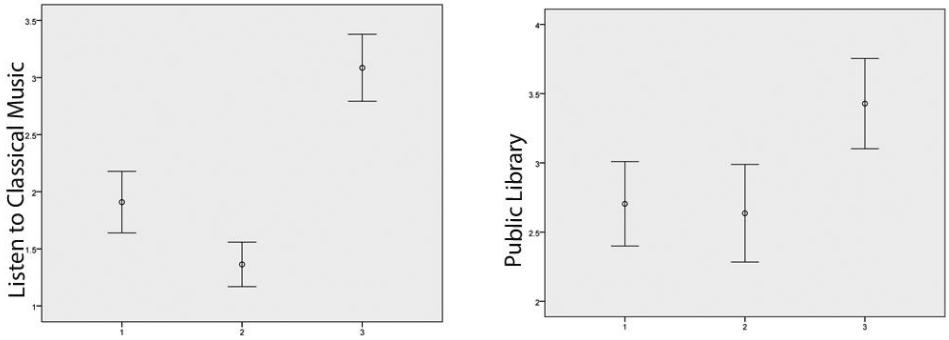


Figure 5.2: Confidence intervals by clusters for *Listening to classical music* and *Going to the public library*

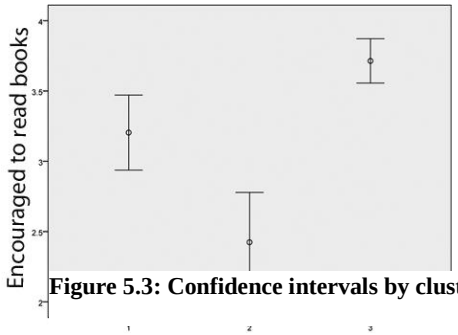


Figure 5.3: Confidence intervals by clusters for *Encouraged by your parents to read books*

There are two items in which Cluster 2 has higher mean responses than Cluster 1 in the 95% CI plots, *Music classes* and *Dance classes*, both of which are in the *Student Participation Activities* subcategory (see Figure 5.4 below).

These findings may be indicative of a lack of parental support or involvement for cultural capital acquisition for students in Cluster 2, combined with the students' own ambition and motivation to participate in extracurricular activities.

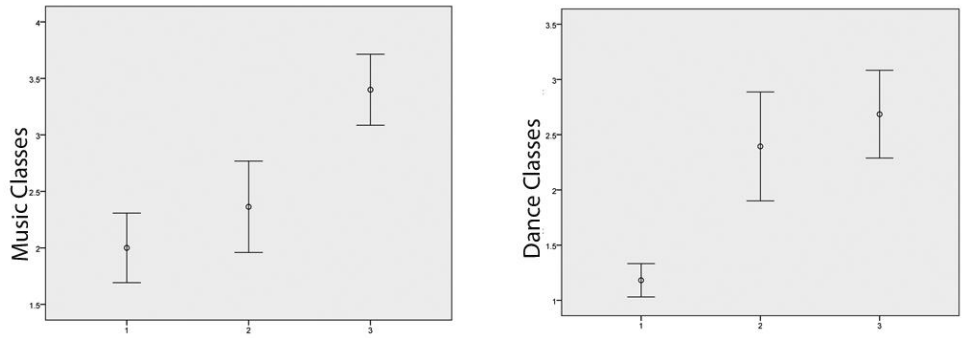


Figure 5.4: Confidence intervals by clusters for *Music* and *Dance Classes*

On three of the remaining four questions (*Art classes, Attending art museums, Attending plays*), there is little difference between Clusters 1 and 2 in the 95%

Confidence Interval plots below. Again, it is Cluster 3 that stands apart, except on the item of *Creative Writing Classes*. On that question, all of the clusters' CI ranges were fairly low, but somewhat surprisingly Cluster 2's range is closer to Cluster 3's.

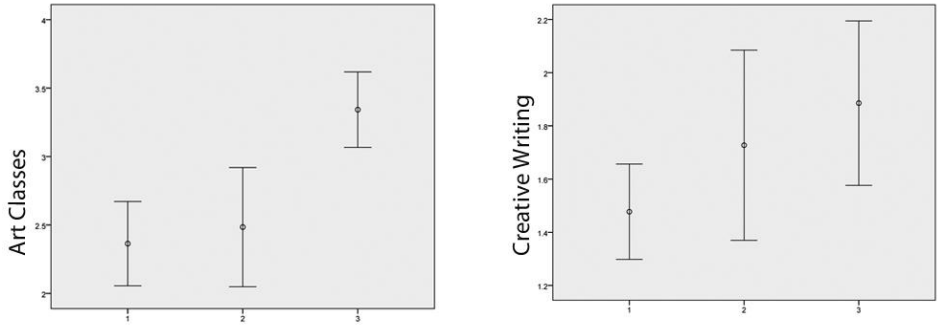


Figure 5.5: Confidence intervals by clusters for *Art* and *Creative Writing Classes*

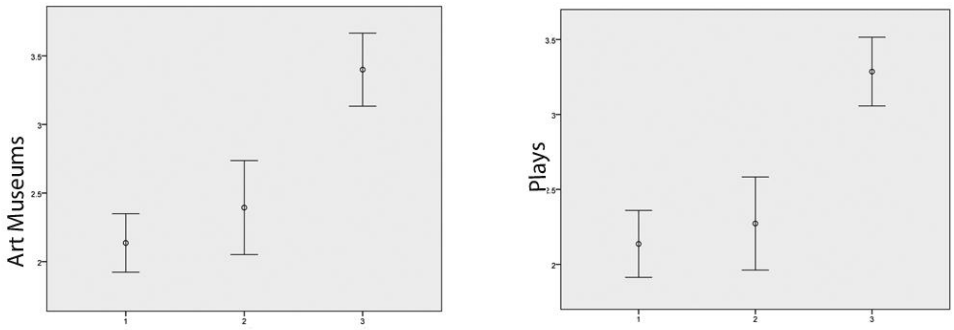


Figure 5.6: Confidence intervals by clusters for *Attending Art Museums* and *Plays*

Even though there is little differentiation between Clusters 1 and 2 on a number of these cultural capital measures, we know from the items in which there are large differences that they each represent a different typology of student. Perhaps the most important differences are on the items of *Parental levels of education*; Cluster 1 students come from parents who are college educated and Cluster 2 students are most likely first-generation college students.

Cultural Capital Variables Most Important in Determining Clusters

The ANOVA table below in Table 5.3 produced with the K-Means cluster analysis is used to determine which of the cultural capital measures contributed the most

in maximizing the distance among the clusters[34]. The variables that have the most impact on determining clusters are those with the largest F values; in this case, both *Parental levels of education* and *Classical music* have the largest F values as shown in bold below. *Creative writing classes, Going to the Public library* and *Art classes* have the smallest F values and therefore can be considered to contribute the least to the formation of the clusters.

	Mean Square - Cluster	Mean Square - Error	**F value**	Significance
Father Education	63.24	1.26	**50.16**	.000
Mother Education	50.49	1.15	**44.05**	.000
Art classes	10.48	1.05	9.99	.000
Music classes	19.87	1.05	18.99	.000
Dance classes	25.51	1.08	23.57	.000
Creative Writing classes	1.68	.689	2.44	.092
Classical music	26.74	.624	**42.85**	.000
Public library	6.87	.967	7.11	.001
Art museums	16.63	.656	25.36	.000
Plays	14.49	.577	25.13	.000
Read books	14.31	.664	21.56	.000

Table 5.3: ANOVA table from Cluster analysis

Table 5.4 below shows the distance between the final cluster centers, with the greatest distance of 4.663 being between Clusters 2 and 3, meaning that Clusters 2 and 3 overall answered most differently on these 11 measures of cultural capital. Cluster 1 is approximately the same distance from both Clusters 2 and 3, although there is a slightly greater distance between Clusters 1 and 3. This supports what has previously been discussed that Cluster 3 answered most differently on the cultural capital measures with consistently higher mean responses than Clusters 1 and 2.

[34] This table is not to be used to determine significance, but rather to be used for exploratory purposes to further understand the formation of the clusters.

	Cluster 2	Cluster 3
Cluster 1	3.078	3.381
Cluster 2		4.663

Table 5.4: Distance between final cluster centers

Cluster Demographics

To further understand the typology of these clusters, it is useful to look at how School A and School B students are distributed in them. As seen in the chart below, Cluster 3 is overwhelmingly represented by School A students with them constituting over 80% of that cluster; the chi-square analysis for this distribution is significant with p= 0.02.

	Cluster 1	Cluster 2	Cluster 3
School A Frequency	27 (61.4%)	17 (51.5%)	29 (82.9%)
School B Frequency	17 (38.6%)	16 (48.5%)	6 (17.1%)
Total	44 (100%)	33 (100%)	35 (100%)

Table 5.5: Distribution by school within each cluster

Taking the same data from Table 5.5 above, we can look at the information in a slightly different way by charting how the clusters are distributed at each school, as shown in Table 5.6 below[35]. We see that Clusters 1 and 3 make up a similar proportion at School A and Cluster 2 has the smallest representation there. At School B, Clusters 1 and 2 constitute approximately the same proportion and Cluster 3 has the smallest representation there. Cluster 1 has about the same representation at both schools, approximately 40%, but we see large differences in how Clusters 2 and 3 are distributed at these schools. Again, School A has the larger proportion of Cluster 3, students from a presumably more privileged background and School B has the larger proportion of Cluster 2, students from a presumably less privileged background.

	Cluster 1	Cluster 2	Cluster 3	Total
School A	27 (37.0%)	17 (23.3%)	29 (39.7%)	73 (100%)
School B	17 (43.6%)	16 (41.0%)	6 (15.4%)	39 (100%)

Table 5.6: Distribution by cluster within School A and School B

[35] Since this is the same distribution of data as Figure 5.5, but now looking at row percentages instead of column percentages, it has the same level of significance in the Chi-square analysis with p=0.02.

When examining the distribution in aggregate form by gender in the table below, there are many more males in Cluster 1 and more females in Cluster 3, resulting in a significant chi-square analysis with p=0.002. Later in this chapter, when demographics are presented for each school, the overwhelming female presence in Cluster 3 only holds true at School A, but the majority male presence in Cluster 1 holds true at both schools.

	Cluster 1	Cluster 2	Cluster 3
Male (N=57)	31 (70.5%)	15 (45.5%)	11 (31.4%)
Female (N=55)	13 (29.5%)	18 (54.5%)	24 (68.6%)
Total	44 (100%)	33 (100%)	35 (100%)

Table 5.7: Distribution by gender within each cluster

The distribution of aggregate data by race and ethnicity is in the table below with a significant chi-square analysis of p= 0.02. Both row and column percentages are included, with column percentages in Italics. Because the numbers were so low for racial and ethnic minority students, the category of *U.S. minorities* was created to collapse the groups of African-Americans, Asian-Americans, Hispanics, and Native-Americans for this particular analysis only[36]. When individual school demographics are examined later in this chapter, we will see that racial and ethnic minority students have a substantial presence at School B, but not at School A. Interestingly, Caucasian students are evenly split among the three clusters as seen in Table 5.8, but there are large differences in how minority and International students are distributed.

Looking at the row percentages, we see that more than half of the U.S. Minorities sampled are in Cluster 1 and one-third are in Cluster 2, leaving a small percentage represented in Cluster 3. This is in stark contrast to the distribution of the International students, of which two-thirds are in Cluster 3 and only one student is in Cluster 2. Looking at the column percentages, we clearly see that U.S. minorities are under-represented in Cluster 3 and International students are over represented in that cluster. Although Table 5.8 is useful for giving us an overview of racial and ethnic distribution by cluster for the entire sample, it should be interpreted with caution as it is not really representative of the distribution present at either school. Later in this section when

[36] When students are grouped according to race and ethnicity for the analyses in Chapter 8, each racial and ethnic minority group will be considered separately.

demographics for each school are presented, we will see how differently the distribution for race and ethnicity is at School A compared to School B.

	Cluster 1	Cluster 2	Cluster 3	Total
U.S. Minority *25.2%* of total sample	14 (51.9%) *(35.9%)*	9 (33.3%) *(27.3%)*	4 (14.8%) *(11.4%)*	27 (100%)
Caucasian *63.6%* of total sample	22 (32.4%) *(56.4%)*	23 (33.8%) *(69.7%)*	23 (33.8%) *(65.7%)*	68 (100%)
International Students *11.2%* of total sample	3 (25.0%) *(7.7%)*	1 (8.3%) *(3.0%)*	8 (66.7%) *(22.9%)*	12 (100%)
Total	39 *(100%)*	33 *(100%)*	35 *(100%)*	107

Table 5.8: Distribution by race and ethnicity within each cluster

At first glance of the distribution by program type, just comparing the UGs to the Graduate students (the first two rows of Table 5.9), it appears as though each group is similarly distributed among the three clusters. It is only when the graduate students are further defined by either their 2G or 3G status (the last two rows of Table 5.9) that we then see how differently they are distributed among the clusters. Row and column percentages are given, with column percentages in Italics. The 2Gs are evenly split between Clusters 1 and 2 and are least represented in Cluster 3. In contrast, the 3Gs are most represented in Clusters 1 and 3 and least represented in Cluster 2.

	Cluster 1	Cluster 2	Cluster 3	Total
UG	27 (39.1%)	20 (29.0%)	22 (31.9%)	69 (100%)
M.Arch	17 (39.5%)	13 (30.2%)	13 (30.2%)	43 (100%)
	Cluster 1	Cluster 2	Cluster 3	Total
2G	10 (41.7%) *(58.8%)*	10 (41.7%) *(76.9%)*	4 (16.7%) *(30.8%)*	24 (100%)
3G	7 (36.8%) *(41.2%)*	3 (15.8%) *(23.1%)*	9 (47.4%) *(69.2%)*	19 (100%)
Total	17 *(100%)*	13 *(100%)*	13 *(100%)*	43

Table 5.9: Distribution by program type within each cluster

The majority of M.Arch students in Cluster 2 are 2Gs and the majority of M.Arch students in Cluster 3 are 3Gs. We will see that these proportions hold true for both

schools when the demographics for each individual school are examined later in this section. This issue of differences in cluster membership between the 2Gs and 3Gs may prove to be important and will be revisited in the chapter that presents data analysis with groups defined by program type (UG, 2G or 3G) for each school. At School A, there was a consistent theme of tension raised by a number of 2Gs, in that they felt the 3Gs received preferential treatment from the faculty and administration. This issue will be discussed to a much greater extent in the later chapter on program type.

Survey Questions

This section will introduce and present the eight banks of survey questions. The eight categories of questions from the survey are as follows: Demographics, Cultural capital measures, Means of financial support, Perceived/Ideal Curriculum, Studio Experiences, Problematic Experiences, Goals/Motivations and Satisfaction. The complete survey can be found in Appendix B. The questions of Cultural capital measures have just been outlined in the previous discussion on cluster analysis. The remaining banks of questions will be reviewed in this discussion of the analysis.

Each category of questions contributes to a comprehensive understanding of a student's experience in architecture school at these two case study sites. In the present analysis, particular concern is given to how a student's cluster membership affects his/her educational experiences. Again, the research question driving this study is as follows: *How do the factors of a student's level of cultural capital and the organizational habitus of architectural education shape his/her socialization into the discipline of architecture?* The present analysis will compare mean cluster responses to the survey questions to specifically address the first factor in the research question of how a student's level of cultural capital affects his/her socialization in architecture. This will be addressed by examining differences among clusters on satisfaction with their education and faculty, frequency of problematic experiences, motivations to pursue architectural education and career goals.

Analysis will first be presented in aggregate form, to explore overall patterns of difference among clusters, followed in the next section by separate analyses for each school. The statistical analysis employed for the data in aggregate form was one-way ANOVA. Now that the groups have been established with the K-means cluster analysis,

ANOVAs are then useful to examine differences in mean responses on particular items, looking for patterns of similarities and differences among the clusters.

Preliminary Analysis with All Students Included: Questions of *Studio Experiences* and *Satisfaction*

Before analysis was conducted on the individual schools, one-way ANOVAs were performed examining differences in mean responses among the clusters, considering all students from both schools. Cluster 1 consistently had the most negative ratings on questions of *Studio Experiences* and *Satisfaction*, specifically dealing with interaction with instructors. Out of a total of 34 questions on *Studio Experiences* and *Satisfaction*, 12 items had statistically significant differences among the clusters. The table below presents those 12 significant items with $p<.05$, demonstrating the less favorable responses given by Cluster 1 in contrast with the more positive responses of Clusters 2 and 3 (Responses are a 4 point likert scale, with 1= Not at all/Very Dissatisfied, 2= Only Occasionally/Somewhat Dissatisfied, 3= Somewhat Frequently/Somewhat Satisfied, 4= Quite often/Very Satisfied).

Studio Experiences and *Satisfaction*	Clus1	Clus2	Clus3
Instructors accept diverse thinking **	2.82	3.16	3.37
Instructors encourage independent thinking	3.03	3.38	3.49
Lack of advising/guidance from faculty	2.50	2.00	2.00
Lack of positive communication w/program director *	2.07	1.68	1.40
School is conducive environment for new ideas **	2.88	3.26	3.49
Critiques are respectful and constructive **	2.61	3.13	3.20
How satisfied with your choice of arch as major	3.34	3.72	3.65
How satisfied you have rec'd well-rounded lib arts education	2.97	3.33	3.41
How satisfied with Faculty: Currency in field	2.91	3.19	3.41
How satisfied with Faculty: Relevancy to profession *	2.70	3.13	3.22
How satisfied with Faculty: Ability to relate to students	2.77	3.19	3.25
How satisfied with Faculty: Ability to provide inspiration **	2.74	3.19	3.35

Table 5.10: Significant items from *Studio experiences* and *Satisfaction* questions
***p<0.01 **p<0.005**

Questions on the Program and the Curriculum

There were three banks of questions in the category of the *Program* and the *Curriculum* on the survey: *Perceived curriculum*, *Ideal curriculum* and *Reasons for attending this university*[37]. For questions of *Perceived curriculum*, students were asked to evaluate 14 aspects of their curriculum (e.g., *Design studio, Structures, Socio-cultural Issues*), based on how much they perceived each aspect was emphasized in their program. For questions of *Ideal curriculum*, students evaluated those same 14 aspects, but were asked how much they would ideally have them emphasized in their education. For questions regarding *Reasons for attending this university*, students were asked to select their top three reasons out of a list of 13 for why they chose this university. Therefore, for this last bank of questions, there are no mean responses to report but rather percentages of students that selected particular reasons.

When one-way ANOVAs were conducted on the 14 questions of *Perceived curriculum*, five of them were statistically significant with $p<0.05$ in bold in the table below.

Perceived curriculum	Clus1	Clus2	Clus3
Design studio	3.91	3.91	3.97
Urban design & analysis	2.45	2.61	2.60
Architectural history	2.41	2.70	2.54
Historic preservation	1.52	1.88	1.63
Theory and criticism	3.20	3.26	3.46
Structures, technology, and environmental systems *	**2.63**	**2.73**	**3.06**
Professional practice and management	**1.63**	**1.88**	**2.11**
Drawing and graphic presentation skills	3.34	3.48	3.49
Computer drafting and modeling skills	**2.81**	**3.15**	**3.31**
Socio-cultural and/or psychological concerns	2.26	2.58	2.74
Programming	2.19	2.42	2.23
Environmentally responsible design and building	**2.45**	**2.76**	**2.94**
Collaboration of students on design projects	2.25	2.24	2.49
Community design work **	**1.70**	**1.73**	**2.20**

Table 5.11: Mean responses to questions of *Perceived curriculum*
Bold: p<0.05, *p<0.01, **p<0.005

[37] The responses to the questions on *Reasons for attending this university* will be discussed at a later point for each individual school.

On all five of the significant items on questions of *Perceived curriculum* in the table above, Cluster 1's responses are consistently the lowest and Cluster 3's responses are the highest. In order to determine if Cluster 1's responses are indicative of dissatisfaction with the emphases of their curriculum, we need to compare these responses to those of the *Ideal curriculum*. The table below shows mean responses to questions of an *Ideal curriculum*. There was only one significant item with $p<0.05$ for *Ideal curriculum, Historic Preservation*, with Cluster 3 wanting more emphasis than Clusters 1 and 2. For the five items that were significant on questions of *Perceived curriculum*, differences were determined between the clusters' responses for *Perceived* and *Ideal curriculum*. Those differences are noted in parenthesis in the table below. All of the differences are positive values, indicating that their responses to the *Ideal curriculum* questions were greater than their responses to the *Perceived curriculum* questions, meaning they would like more emphasis in these areas.

Ideal curriculum	Clus 1	Clus 2	Clus3
Design studio	3.93	3.97	3.94
Urban design & analysis	3.00	3.18	3.14
Architectural history	2.74	2.97	3.06
Historic preservation	**2.23**	**2.33**	**2.74**
Theory and criticism	3.06	3.24	3.40
Structures, technology, and env. systems	3.51 (.88)	3.39 (.66)	3.40 (.34)
Professional practice and management	3.03 (1.40)	2.97 (1.09)	3.00 (.89)
Drawing and graphic presentation skills	3.52	3.70	3.71
Computer drafting and modeling skills	3.41 (.60)	3.52 (.37)	3.40 (.09)
Socio-cultural and/or psychological concerns	2.91	3.27	3.26
Programming	2.51	2.94	2.71
Environmentally responsible design and bldg	3.52 (1.07)	3.48 (.72)	3.77 (.83)
Collaboration of students on design projects	2.69	2.70	2.89
Community design work	2.68 (.98)	2.85 (1.12)	2.94 (.74)

Table 5.12: Mean responses to questions of *Ideal curriculum*
Bold: $p<0.05$

The differences between *Perceived* and *Ideal curriculum* are greatest for Cluster 1 on all five items, with the exception of *Community design work*, where Cluster 2 has the

greatest difference. The item with the largest discrepancy between perceived and ideal ratings for Cluster 1 is on *Professional practice and management* with a difference of 1.40. Although all three clusters want approximately the same emphasis in their *Ideal curriculum* for all five items, there are noticeable differences in how much emphasis they perceive in their present curriculum.

Questions on Problematic Experiences

Out of the 16 questions regarding students' frequency of encountering *Problematic experiences* in their education, only two items were statistically significant with a one-way ANOVA, $p<0.05$, emphasized in bold in the table below. The four-point scale of responses for these items is as follows: *Not at all* (1), Only *Occasionally* (2), *Somewhat frequently* (3), *Quite often* (4). Cluster 1 had higher mean responses than the other two clusters, indicating that they experienced problems in these two areas more frequently. However, their highest mean response was only 2.57 (for *Feeling the rewards of an architecture degree is not worth it*); Cluster 2 also rated that item similarly at 2.52, but their highest mean response was 2.55 for *Financial problems*. Cluster 3's highest mean response was 2.40 for *Lack of confidence in design/academic abilities*. When we look at responses for each individual school, we will see that the School B students report a much greater frequency of problematic experiences in their educations.

Problematic Experiences	Clus1	Clus2	Clus3
Financial problems	2.44	2.55	2.00
Conflict between school and family	2.30	2.32	1.97
Lack of encouragement from instructors	2.05	2.03	1.89
Lack of peer support among students	1.83	1.81	1.77
Lack of support from admin staff	1.96	1.84	1.66
Lack of advising/guidance from faculty	**2.50**	**2.00**	**2.00**
Lack of positive comm. w/program director *	**2.07**	**1.68**	**1.40**
Lack of positive contact w/dean	2.51	2.40	1.94
Aggressive, competitive students	2.19	2.16	2.14
Discriminatory towards women	1.19	1.26	1.31
Discriminatory towards minorities	1.29	1.27	1.46
Actions of instructor discouraging	2.05	1.81	2.03
Lack of confidence in design/academic abilities	2.29	2.26	2.40

Little flexibility in course offerings	2.28	2.30	2.23
Limited job opportunities in arch	2.14	2.13	1.83
Feeling arch degree not worth it	2.57	2.52	2.14

Table 5.13: Mean responses to questions of *Problematic Experiences*
Bold: p<0.05, *p<0.01

Questions on Goals/Motivations

On the 13 questions regarding students' motivations to pursue an education in architecture (see Table 5.14 below), no significant differences were found among the clusters. In fact, out of all eight categories of survey questions, the cluster responses are most similar for this particular group of *Motivation* questions. Everyone's top two motivations in choosing to study architecture are *Intellectual challenge* and *Opportunity to be creative*. They also all agree on the importance of the *Ability to be a licensed architect* as a motivating factor. There are two minor differences that emerge between Cluster 2 and the other clusters on the items of *Opportunity to solve important problems/work for social change* and *Opportunity to help people*. Cluster 2 rates both of these items as less important motivators than both Clusters 1 and 3, with the largest difference being between Clusters 2 and 3[38].

	Clus1	Clus2	Clus3
Fame	1.73	1.66	1.59
High income potential	2.48	2.34	2.26
Intellectual challenge	3.32	3.63	3.53
Opportunity to be creative	3.73	3.87	3.82
Job security	2.77	2.91	2.74
Ability to be a licensed architect	3.21	3.25	3.15
Independence	3.17	3.19	3.12
Status or prestige	2.23	2.19	2.35
Participation in community action	2.72	2.75	2.94
Wide availability of jobs	2.40	2.69	2.50
Opportunity to solve problems or work for social change	3.09	2.97	3.29
Opportunity to create new knowledge or do research	2.81	2.97	3.24
Opportunity to help people	3.28	3.06	3.38

Table 5.14: Mean responses to questions of *Motivations*

[38] This particular dynamic present in Cluster 2 only holds true for students at School A, as we will see in the next section of analysis that examines differences between the clusters at each case study site.

Table 5.15 below lists the 15 job scenarios items from the *Goals/Motivations* section of the survey, with the three significant items in bold, $p<0.05$. For the potential job scenario, *To work in a medium-large architecture firm*, Cluster 2 rated this as less desirable than both Clusters 1 and 3. Cluster 2 also rated *To work in an architectural-engineering firm* as much less desirable than Cluster 1 and *To work for an advocacy group/non-profit* as much less desirable than Cluster 3. At least on these questions of job scenarios, Cluster 2 seems to respond quite differently than Clusters 1 and 3, expressing less interest in a variety of job scenarios.

	Clus1	Clus2	Clus3
To work alone in private architectural practice	2.41	2.91	2.74
To work in a small firm's private architectural practice	3.09	3.44	3.26
To work in a med-large firm's private arch practice	**3.16**	**2.78**	**3.29**
To work in an architectural and engineering firm	**2.91**	**2.31**	**2.65**
To work in an interior design firm	2.30	2.22	2.48
To work in a landscape architecture firm	2.15	2.06	2.47
To have an architectural position in a corporation	2.32	2.22	2.41
To work for a government agency, e.g., housing agency	1.98	1.59	2.00
To work for an advocacy group or non-profit	**2.07**	**1.78**	**2.40**
To work in a private consulting practice or research	2.25	2.28	2.41
To teach architecture classes at the college level	2.68	2.91	2.94
To work in construction/contracting	2.30	2.28	2.32
To work in a design build firm	3.05	3.25	3.12
To work as a real estate developer	2.18	2.09	1.97

Table 5.15: Mean responses to questions of *Job scenarios*
Bold: p<0.05

Analysis by Clusters: School A and School B

The previous section outlined key differences among clusters with the data in aggregate form on the survey questions, using one-way ANOVAs as the method of statistical analysis. This section will now examine differences among clusters at each individual school, employing ANOVAs as well as Multi-dimensional scaling (MDS) for analysis. MDS refers to a group of techniques that produce visual representations of similarities and differences within a dataset. Generally, its purpose is to reveal the "hidden structure" of the data, thereby making patterns within the data more apparent

(Kruskal & Wish, 1978). Using MDS allows us to see not only how the three clusters at each school relate to each other, but also how they relate to the clusters of the other school.

Demographics

This portion of the analysis will focus on patterns of responses for the clusters at each individual school. Firstly, it is important to understand the demographic distribution of respondents in the three clusters at each school[39]. Table 5.16 below shows the cluster distribution defined in terms of gender. At School A, cluster 1 has a majority of male students and clusters 2 and 3 have a majority of female students; chi-square was significant at p=0.001. At School B, clusters 2 and 3 are evenly split by gender, but cluster 1 is almost 2/3 male. The chi-square could not be calculated at School B because two of the six cells produced expected counts of less than five, which violates the conditions of the test.

	Cluster 1	Cluster 2	Cluster 3
School A Male *(N=34; 46.5% of sample)*	20 (74.1%)	6 (35.3%)	8 (27.6%)
School A Female *(N=39; 53.5% of sample)*	7 (25.9%)	11 (64.7%)	21 (72.4%)
School A Total	27	17	29

	Cluster 1	Cluster 2	Cluster 3
School B Male *(N=23; 59.0% of sample)*	11 (64.7%)	9 (56.3%)	3 (50.0%)
School B Female *(N=16; 41.0% of sample)*	6 (35.3%)	7 (43.7%)	3 (50.0%)
School B Total	17	16	6

Table 5.16: Gender distribution within clusters at School A and School B

Table 5.17 below shows the racial and ethnic distribution at School A and School B. Again, the chi-square could not be reliably calculated for either school because they both had too many expected cell counts less than five. Nevertheless, there are some telling patterns to note in the distribution by ethnicity across schools. At School A, more than ½ of all International students are in Cluster 3 and at School B over 2/3 of the

[39] All distributions in tables will be organized in the same fashion for the remainder of this chapter, with Clusters as columns and the variable of interest (gender, program type, and ethnicity) as rows. All percentages given will be for the columns (e.g., percentage of Cluster 1 who are males, percentage of Cluster 3 who are UGs, etc.), as it is of interest in this section to define the clusters demographically.

Hispanic students are in Cluster 1. White students at School A are almost evenly distributed between Clusters 1 and 3, with a smaller representation in Cluster 2. At School B, the white students are also evenly distributed between Clusters 1 and 3, but unlike School A, they have the largest representation in Cluster 2.

The percentages in the *Total* columns for School A and School B give us a quick snapshot of the demographic breakdown by ethnicity for the entire sample at both schools. We clearly see that School B has a much larger U.S. minority population than School A does, with a combined total of 41.1% at School B compared to 16.4% at School A. We also see a difference in how these students are distributed within the clusters at each school. At School A, the U.S. minority students are generally evenly distributed among the three clusters, but at School B, all U.S. minority students are only found either in Clusters 1 or 2.

School /Clus 1, 2, or 3	A C1	A C2	A C3	**A Total**	B C 1	B C2	B C3	**B Total**
African-American	1	1	1	**3 (4.1%)**	1	0	0	**1 (2.6%)**
Asian-American	3	1	2	**6 (8.2%)**	0	0	0	**0**
Caucasian	16	13	18	**47 (64.4%)**	6	10	5	**21 (53.7%)**
Hispanic	1	1	1	**3 (4.1%)**	8	3	0	**11 (28.2%)**
International Students	3	1	7	**11 (15.1%)**	0	0	1	**1 (2.6%)**
Native American	0	0	0	**0**	1	3	0	**4 (10.3%)**
Missing	3	0	0	**3 (4.1%)**	1	0	0	**1 (2.6%)**
Total	27	17	29	**73 (100%)**	17	16	6	**39 (100%)**

Table 5.17: Distribution by race and ethnicity within clusters for School A and School B

The distribution by program type of the clusters is in the table below; chi-square analysis was not significant for School A. Again, there were too many expected cell counts less than five at School B for the chi-square analysis to be conducted. At both schools, there were more UGs sampled, which may at least partly account for their large percentages within Clusters 1 and 2 at School B and within Cluster 3 at School A.

	Cluster 1	Cluster 2	Cluster 3
School A - UG	13 (48.1%)	9 (52.9%)	19 (65.5%)
School A – M.Arch students	14 (51.9%)	8 (47.1%)	10 (34.5%)
School A – Total	27	17	29
School B - UG	14 (82.3%)	11 (68.7%)	3 (50%)
School B – M.Arch students	3 (17.7%)	5 (31.3%)	3 (50%)
School B - Total	17	16	6

Table 5.18: Distribution by program type within clusters for School A and School B

When the numbers for the Master of Architecture students at School A and School B are examined more closely by separating them into 2Gs and 3Gs, some clear differences emerge between the two program types as seen in Table 5.19 below. At School A, Clusters 1 and 2 are largely composed of 2Gs whereas Cluster 3 is mostly 3Gs. Even though the sample size for graduate students at School B is quite small, it is still striking that almost all of the 2Gs are found in cluster 2[40]. Furthermore, looking at the proportions of the distributions for Clusters 2 and 3, there is a similarity between Schools A and B; both schools' Cluster 2 is largely represented by 2Gs and Cluster 3 is largely represented by 3Gs.

	Cluster 1	Cluster 2	Cluster 3
School A - 2G	10 (71.4%)	6 (75.0%)	3 (30.0%)
School A - 3G	4 (28.6%)	2 (25.0%)	7 (70.0%)
School B - 2G	0	4 (80.0%)	1 (30.0%)
School B - 3G	3(100%)	1 (20.0%)	2 (70.0%)

Table 5.19: Distribution of M.Arch students within clusters at School A and School B

[40] The total sample size for graduate students was 50 (35 at School A and 15 at School B). The sample size in these analyses is smaller because if a student didn't answer one of the 11 cultural capital measures, then they were omitted from the cluster analysis. This resulted in a loss of three M.Arch students from School A and four M.Arch students from School B in the cluster analysis.

Comparison of Clusters at Each School

Questions of Satisfaction, Studio Experiences and Problematic Experiences

When cluster responses were compared within each school, the consistent pattern of more negative responses for Cluster 1 still held true at both schools. Overall, all of School B's responses were more negative than School A's responses, but School B's Cluster 1 responses were still markedly more negative than School B's Clusters 2 and 3. The table below contains all statistically significant differences for the two schools on the 50 questions of *Satisfaction*, *Studio Experiences* and *Problematic Experiences*. Two of the significant items for School A are more related to perception of the program, rather than interactions with faculty, staff and fellow students; those two items are *Design projects emphasize environmentally responsible building techniques* and *Importance of verbal presentation skills to succeed in architecture school*. For both of these items, Cluster 2 answered most differently. For the other two significant items at School A, Cluster 1 responded most negatively.

All of the items that were significant at School B as shown in Table 5.20 are directly related to students' satisfaction with the program. Cluster 1 at School B has a pattern of most negative responses and Cluster 3 has the most positive responses. There is only one item in which School B Cluster 3 does not have the most positive mean response, but rather is tied with Cluster 1 for the lowest mean response: *Critiques are respectful and constructive*. When the data are examined by gender within cluster, it is apparent that the School B Cluster 3 females responded very negatively to that question, pulling down the mean response to 2.33.

	Clus1	Clus2	Clus 3
School A: Design projects emphasize environmentally responsible building techniques	2.26	2.13	2.62
School A: School is conducive environment for new ideas	3.15	3.53	3.59
School A: Critiques are respectful and constructive	2.83	3.27	3.38
School A: Importance of Verbal presentation skills to succeed in architecture school	3.26	3.73	3.53
School B: Instructors accept diverse thinking	2.53	3.00	3.33

School B: Critiques are respectful and constructive	2.27	3.00	2.33
School B: Lack of support from administrative staff	2.59	2.25	1.33
School B: Lack of positive communication w/program director	2.59	1.81	1.50
School B: How satisfied with your choice of arch at this university	2.65	3.13	3.50
School B: How satisfied with Faculty: Currency in field	2.41	2.81	3.33
School B: How satisfied with Faculty: Ability to provide inspiration **	2.12	2.81	3.17

Table 5.20: Significant differences on questions of *Satisfaction, Studio Experiences* and *Problematic Experiences* **p<0.005

It is helpful to now look at the interview data for School B Cluster 3 females to shed some light on their dissatisfaction with critiques. All interviewees have been assigned pseudonyms to protect their identities. Firstly, it is important to preface any analysis of this interview data with my overall general impressions. Even though all interviews followed a specific protocol of questions, each interview took on a unique tone based on the personality, disposition, thoughts and opinions of the interviewee. Throughout the process of interviewing, I noticed patterns emerging with the discussions taking on certain tones, especially for the students.

In coding the interviews, I noticed that the student interviews could be placed on a continuum of tone ranging from restrained to passionate. Some students were quite reserved in their responses and others were openly expressive, regardless of whether their feelings toward their educations were generally positive or negative. The second factor to consider when assessing the interviews was that of the students' feelings toward their educations, which could fall anywhere on a continuum from negative/angry to positive/laudatory. Throughout this dissertation, student interviews will first be introduced with consideration given to these two factors, describing them with some combination of a restrained/passionate tone combined with negative/ positive feelings.

The sample size is very low for the Cluster 3 females at School B (N=3), but I did happen to interview all three of them. All three would likely be considered "non-traditional" students as they are older than the mean age for graduate students at School B (Hannah was 36, Mary was 52 and Christine was 54 at the time of the interview).

Although they were not the most dissatisfied students I interviewed at School B, all of their interviews took on a negative tone in discussing their program, especially on the question of *What do you think it takes to succeed in architecture school?* Christine was most blunt in her response of, "Hot looking graphics, that's all" and when probed further about what else it might take to succeed in architecture school, she said, "A modernist design ethic, that's it." Hannah responded similarly, although somewhat more diplomatically in saying, "Good graphic skills. Unfortunately, a lot of things can just have fancy, glossy boards and the design has little to no content, but you're so impressed by the visual orgy of it all, that a lot gets lost." Mary had the least cynical response and discussed how important clear communication is to succeed. Although in answering this question, she took the opportunity to express her disappointment with how students are "just berated" in critiques and "a lot of times people are in tears and just wrecked" by professors who "just tear something apart."

Hannah and Christine were both tapping into the same issue of stylish, appealing graphic communication getting mistaken for a successful design and expressed their disappointment with that. After the formal interview was concluded, Hannah brought up the issue of how she has changed her presentation style over the years in architecture school. She is quoted at length below, for her insight on how the critique process has changed her is quite telling about how powerful this process is:

> …I've found that I just get really defensive in critiques in that I just close myself off and become really dry presenting, because I almost don't want to expose myself as much as I used to. It's like, I'm almost done, just don't rip me up today, so I'm going to be as dry as I can….Because the more passion you show, the more the critiquers have to feed off of. So I just learned and realized that 'God, you're not really sharing yourself anymore and have just learned to be the robot'…I really need to snap out of that because the beauty is sharing your passion about what you're creating and not just treating it like this a, b, c (making repetitive motion with her hands).

Christine had some harsh words to say about the discipline of architecture when we were discussing what kind of future work she might pursue. She talked about her interest in global relief work and referenced the work of Teddy Cruz and Cameron Sinclair as people she would be interested in following. As she said, "I really hate

architecture right now. I really hate how it's practiced or how it's taught that it's supposed to be this glossy little thing on the wall that sells." I asked her when these negative feelings toward architecture came about and she explained that it all started with a pin-up in her Professional Practice class two years ago for which she had designed an outhouse. In retelling the story, she started crying saying, "I was just murdered up there, it was horrible….I had a smart, informed argument. I took Corbusier's five points of architecture and showed them how it applies to outhouses….They hated it and I went out and cried for three hours."

Both Christine and Hannah expressed their dissatisfaction with the critique process in very personal ways, whereas Mary's description was somewhat more objective and detached. Hannah felt she was changing who she was in order to please the critics and Christine felt that her somewhat non-traditional interests in architecture as a global relief effort were not valid in the eyes of the critics. Responses such as these in their interviews corroborate their low mean response indicating their disagreement with the statement *Critiques are respectful and constructive* from the survey.

Multi-Dimensional Scaling

The one-way ANOVAs were followed up with a multi-dimensional scaling procedure (MDS) to further understand how the clusters within and between schools related to each other. The eight points in Figures 5.7-5.9 below represent mean responses for the three clusters at each school and as well as overall mean responses for each of the entire School A and School B samples to questions of *Studio Experiences*, *Satisfaction* and *Problematic Experiences*. Each school is labeled with its cluster number of *1, 2, 3* or if it represents the entire sample, then it is labeled *mean*. Looking at these three MDS plots, there are a number of observations to make. Firstly, we see that there are two distinct regions for School A and School B, as indicated by the dashed line in Figure 5.7[41]. Secondly, the School A cluster points are much closer to each other and their overall mean than the School B clusters are to each other. Thirdly, we see that there appears to be a pattern of School A's Cluster 1 consistently separating from School A's Clusters 2 and 3. For example, on the plot of *Studio Experiences* immediately below,

[41] The dashed lines on the MDS plots were not part of the original plot produced by SPSS, but rather added afterwards to delineate two distinct regions.

School A Cluster 1 is closer to School B Cluster 2 than to either School A Clusters 2 or 3, indicating similar patterns of responses between School A Cluster 1 and School B Cluster 2.

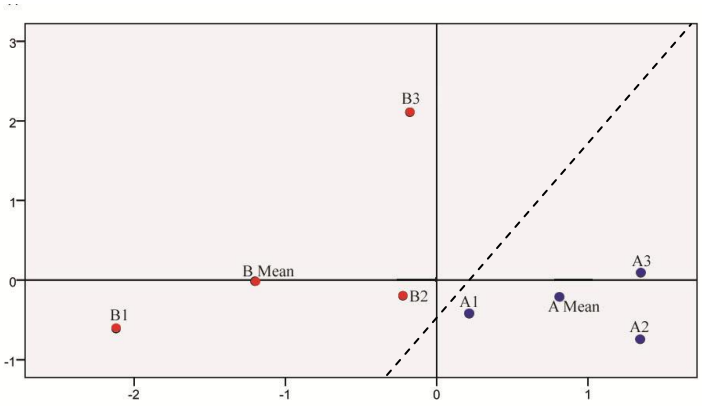


Figure 5.7: MDS plot by Cluster Means on Questions of *Studio Experiences*
Stress= 0.02213 RSQ=0.99700[42]
Label: School *A* or *B*/Cluster *1, 2, 3* or *Overall Mean*

On the MDS plot for mean responses to *Satisfaction* questions below, School B Cluster 3 begins to approach the School A clusters, closest to School A Cluster 3. Again, there are distinct regions for each school, as indicated by the dashed line. Also, both schools show a similar pattern for their Cluster 1 points in how they each relate to their corresponding school points. Even though School A points are overall much closer to each other than the School B points are, both schools exhibit the same pattern of Cluster 1 distancing itself from the other points. Looking at mean responses for this category of questions, each school's Cluster 1 has the most negative responses when compared to the other two clusters in its school. However, when comparing School B Cluster 1 to School A Cluster 1, the former's responses were far more negative and we can see how distant their point is from all other points in the figure below.

[42] Stress and RSQ values are reported with MDS analyses as an indicator of "goodness of fit" for dimensionality of the model. Small stress levels (lowest possible value of zero) and large RSQ values (largest possible value of one) are indicative of a good fit.

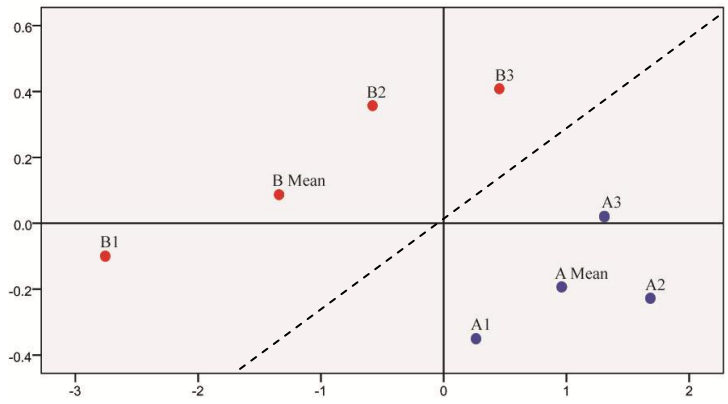


Figure 5.8: MDS plot by Cluster Means on questions of *Satisfaction*
Stress = 0.00606 RSQ = 0.99986

On the MDS plot for mean responses to *Problematic Experiences* questions below, again School A Cluster 1 is distant from School A Clusters 2 and 3. Although none of the one-way ANOVAs were significant for these items, School A Cluster 1 generally reported experiencing more frequent problems than School A Clusters 2 or 3. The most frequent problem reported by any group at School A was Cluster 1 on *Financial problems* with a mean response of 2.54 which falls in between *Only Occasionally* and *Somewhat frequently*. At School B, it was also Cluster 1 that reported the most frequent problems, but the placement of School B's points are harder to interpret in the MDS plot of Figure 5.9, as they are all very distant from one another. However, similar to what we saw in the MDS plot for questions of *Satisfaction*, School B Cluster 1 is the most distant point and School B Cluster 3 is approaching the School A region. Although in Figure 5.9, School B Cluster 3 is quite distant from both schools' mean points, somewhat of an outlier for these questions. In the following chapter that examines responses by gender within clusters, we will see that males and females of School B Cluster 3 answered quite differently on the majority of these questions. Again, School B Cluster 1 was by far the most dissatisfied group of all the clusters. The highest mean response at School B to questions of *Problematic experiences* was Cluster 1's response of 3.18 to the item of *Lack of positive contact with the dean*, meaning that these students reported this problem happening more often than *Somewhat frequently*. Also in the next chapter, interviews from School B Cluster 1 will be referenced to understand the problems students have had with their dean and administration.

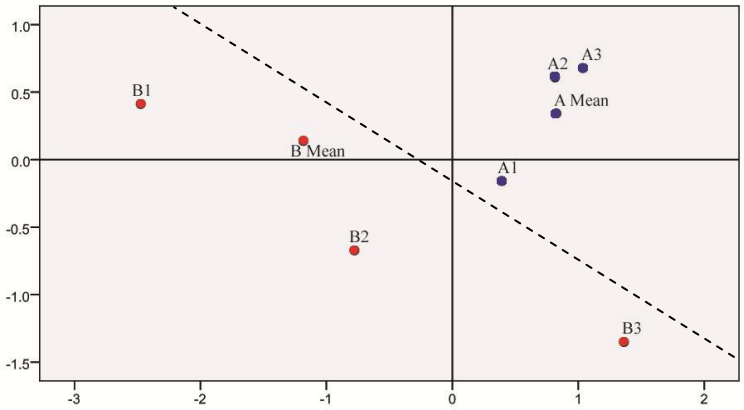


Figure 5.9: MDS plot by Cluster Means on questions of *Problematic Experiences*
Stress = 0.04135 RSQ = 0.99096

There were a few items in which School A Clusters 2 and 3 had similar mean responses to the *Problematic Experiences* of School A Cluster 1, although none of these items were reported as happening very frequently (mean responses were less than 2.50 on a 4.0 scale). Those items are listed in the table below. *Feeling that the rewards of an architecture degree aren't worth the efforts of getting it* was the most frequent problem for Cluster 2 and a *Lack of confidence in design/academic abilities* was the most frequent problem for Cluster 3.

	A Clus 1	A Clus 2	A Clus 3
Lack of positive contact w/dean	2.08	2.21	1.97
Aggressive, competitive students	2.08	2.40	2.21
Lack of confidence in design abilities	2.25	2.47	2.38
Little flexibility in course offerings	2.08	2.29	2.31
Feeling arch degree not worth it	2.44	2.50	2.10

Table 5.21: School A Mean responses to select questions of *Problematic experiences*

As stated previously, School B Cluster 1 generally responded the most negatively to questions of *Problematic Experiences*, with mean responses that are higher than School A Cluster 1, indicating the most frequent problems of any cluster from both schools. The items for which School B Cluster 1 reported the most frequent problems are in the table below, with statistically significant differences ($p<0.05$) in bold.

	B Clus1	B Clus2	B Clus3
Lack of support from admin staff	**2.59**	**2.25**	**1.33**
Lack of advising/guidance from faculty	2.94	2.06	2.00
Lack of positive communication w/program director	**2.59**	**1.81**	**1.50**
Lack of positive contact w/dean	3.18	2.56	1.83
Little flexibility in course offerings	2.59	2.31	1.83
Feeling arch degree not worth it	2.76	2.53	2.33

Table 5.22: School B Mean responses to *Problematic experiences*

Faculty Interviews

There are a number of key differences to outline when synthesizing cluster responses to the three categories of survey questions discussed thus far from both schools. At both schools, it is Cluster 1 who reports the most frequent problems and is generally the most dissatisfied; however, School B Cluster 1 responds the most negatively of all groups by far. The least satisfied group at School A is Cluster 1, but their responses are often comparable to the most favorable responses of School B. Faculty interviews were briefly outlined in the previous chapter on *Organizational Habitus* to offer an introduction to the two very different atmospheres of Schools A and B. For the present discussion, these interviews will be presented in more detail to further understand the extent to which faculties' attitudes and perceptions of their students' backgrounds and capabilities contribute to creating an environment marked by mutually high expectations of School A students and faculty and mutually low expectations at School B.

School A Faculty Interviews

There was one interview question in particular that initiated conversations with faculty in which they carefully considered who the students are in their architecture school and how they interact with the larger system of architectural education at their school: *How important do you think students' backgrounds are, for example, their artistic, cultural or educational backgrounds?* This question, especially at School A, spurred discussions on how backgrounds affect success specifically within architectural education at their institution and how faculty deal with students of various backgrounds. Excerpts from five out of a total of twelve School A faculty interviews have been

selected for this discussion as these particular individuals offered the most insight into the atmosphere of School A's architecture program.

On this particular interview question, a number of School A faculty talked about the importance of travel and exposure to different cultures and experiences outside one's "comfort zone"[43] in architecture school. Sonja[44], a tenure-track faculty member who taught UG studio, was one of those who emphasized the importance of being "exposed to different contexts, cultures, languages" in one's background to be successful as an architecture student.[45] She reiterated the importance of travel and experiences outside the community in which one grew up so much for this question that I then asked her to elaborate on the opposite situation, one in which a student has never had such exposure. She responded that it is a disadvantage, but it doesn't mean that such people don't have "strong sensitivities." She then talked about what advice she offers such students and included the related subject of advising students regarding graduate school, in which she also encourages new experiences outside of the country:

> I encourage them to register for study trips abroad and to find financial aid to assist them to travel. Or if they don't have financial problems, then I just say, 'Schedule a trip, just do it.' I come from a diverse background with a lot of travel, of living in other countries, different schools and education systems…when they ask where to apply to graduate school, I encourage other places abroad. For one student, I said, 'How about the Bartlett?' Why not open a door to have a new opportunity, have the chance to live in London?

The worldview Sonja seemed to have for her students is "the world is your oyster" and encouraged them to expand their horizons and release previous limitations they may have felt. Although she did acknowledge that perhaps some students have not travelled extensively because of financial difficulties, she did so briefly and without

[43] Approximately 40% of School A faculty used the phrase "comfort zone" or some variation of that in reference to exposing students to new experiences and pushing students beyond their comfortable boundaries; and so it is not attributed to one particular faculty member.
[44] All names have been changed to maintain participants' anonymity.
[45] She explained that it was so important to her as an instructor to have an understanding of each of her student's backgrounds that she created a survey for each student to complete within the first week of school, answering questions regarding their previous educations, travel, books they've read, and which architects they most admire. It was a way for her to have a quick assessment of all of her new students to guide her teaching with each individual student.

much consideration given to how one might secure financial aid that exists for travel opportunities.

While Sonja did not offer any indication that she preferred teaching one type of student (i.e., those who have had broad cultural, extensive experiences) over another (i.e., those lacking in such experiences), two other faculty did, Mira and Mark. However, the preference that both of these faculty shared was actually for the students who were lacking in experiences at School A, rather than those who had travelled, visited architecture and museums, and different cultures in their upbringing. Again, it was the question of students' backgrounds that prompted these conversations.

Mira, a tenure-track UG and graduate studio instructor, replied that she does not generally ask students about their backgrounds and therefore does not know much about them, but still she said, "I can't imagine it [a student's background] is not hugely important." For those students who were raised with travelling as a part of their upbringing, she described it somewhat derogatorily as "an unfair advantage." In contrast, she often felt that she appreciated the "students who are just now experiencing everything, with that excitement of 'Oh my God, I had no idea this world existed,' because they are completely open to it." She contrasted two kinds of students she has had in her eight years of teaching at School A; one group who grew up in the state in which School A is located and have never left the state, but were brought up with a mentality to be open to everything, "they absorb everything open-mindedly." The other group has been raised "by travelling to Switzerland every winter to go skiing and they are so closed-minded, it's unbelievable." This sentiment emerged in several other faculty interviews at School A as well, that students' financial means and ability are not as important as their curiosity, desire to learn and openness to new ways of thinking.

Mark, an adjunct UG studio instructor, also agreed on the importance of a student's background but qualified his answer with "it's not essential" to do well in architecture school. He raised a similar issue as Mira on the importance of a clear and open mind for an architecture student, perhaps even more so than the variety of cultural experiences through travel that a student could have. In his experiences, some of his best students have been from the "backwoods and have never even seen a city with two stoplights," but have an inventive, creative, problem-solving ability that has flourished by

living in such rural locations. In Mark's estimation, these students have their own unique set of life experiences in which they learned to work and problem-solve around constraints that have enabled them to succeed in architecture school, "even though they don't know the difference between Paris, Texas and Paris, France."

Michelle, a tenured first-year UG studio instructor who had been teaching at School A for over 15 years, took a slightly different direction on the question of student backgrounds, in that she did not discuss travel and broad cultural experiences as much as many of the other faculty, but rather talked about what the culture of architecture is and how a student's background may hinder him/her from fitting in to this particular system of education. She described "an elitist air around architecture" where "it is its own little world and some students have a much easier time slipping into that or at least pretending they are part of it and some have a much harder time feeling like they can start to talk about anything." In examining this issue, Michelle speculated that it has a lot to do with a student's ability "to abstract things and to think abstractly." In her experience, some students are more interested in architecture as a "scientific, technical, puzzle solving endeavor," and have a hard time conceptualizing architecture as an abstract endeavor. She believed one could characterize the students who embraced architectural education as it is, as an abstract endeavor, as those who "come from a culture where metaphors are a part of life experience," and the other students who have such difficulty with it as "coming from a culture where things are more direct, you know what they are and you're getting through them day by day."

The final School A faculty interview to discuss is from Kevin, a tenure track UG and graduate studio instructor. As a member of a diversity committee at School A, he was acutely aware of the lack of racial diversity in the architecture program at School A and he explained his desire for greater diversity in the program; yet, he also expressed his concern that the culture of architecture may not be welcome to such diversity. It was a complex issue that he raised which asked critical questions of the system of architectural education, specifically at School A:

> We [School A architecture faculty and administration] all agree that ethnic minorities are underrepresented at this school and then we immediately assume we should go out and get more African-American students to

> come to our program. I'm all for that on one hand, but then I sit and think to myself or I talk to colleagues about this too, what do we really have to offer to people who aren't from our dominant whatever you would call it, social group, that the school caters to and is defined by? And are we actually able to set up or know how to go about including diverse outlooks in the study of architecture…or sadly, are we in a position where all we can do is just ask people of diverse backgrounds to assimilate into our dominant, white culture?[46]

The questions that Kevin raises in the quote above indicate some level of awareness on his part, of an implicit bias in architectural education, specifically at School A, that caters to those whose interests are aligned with the dominant architectural culture. He recognized that some curricular aspects are valued more than others in the program at School A and those aspects are representative of the architecture culture at large. He does not claim innocence in this dilemma but rather situates himself precisely in the middle of it:

> …the stuff that I'm particularly excited about in architecture, and I feel is my strongest card as a teacher, are born of a kind of elitist, narrowly focused set of values that either I grew up in, or I internalized from my own education. So it's kind of a double bind there, I love certain aspects of architecture but I also don't think those things are necessarily the most open to change and adaptable to diverse backgrounds.

School B Faculty Interviews

Overall, the School B faculty interviews were less unified in their responses when compared to the School A faculty. Rather than report on faculty responses to the interview question on student backgrounds as I did for School A, I will present excerpts from School B faculty interviews that are telling of their perceptions of School B students. Although School B faculty did not make explicit connections between a student's background and success in architecture school, the way in which they spoke of their students is indicative of the implicit judgments they are making. Sometimes the question of students' backgrounds generated these discussions and other times the

[46] I did not fully debrief interview participants on the research I was conducting until the interview was over. Kevin's comments quoted here address the purpose of this research amazingly well, given he was not aware yet of the purpose and motivations of the research I was conducted. His sentiments expressed here reflect only his genuine viewpoint and concerns.

interview question, *What do you think it takes to succeed in architecture school* prompted conversations about School B students.

The tone with which School B faculty spoke of their students was generally negative, with a few positive references to particular students who stood out as exceptional. There are three key themes that arose in their interviews regarding their depiction of students that were introduced in the previous chapter on *Organizational Habitus*: (1) School B students, especially UGs, lacked initiative, (2) The state in which School B is located lacked in resources and "architecture of substance," and (3) Discussions of "struggling students" and questioning who should or should not pursue architecture. The first issue will be addressed fully in Chapter 7 which presents analyses of student responses based on program type. The second and third issues will be covered in the present discussion.

Similar to School A, a few of the faculty at School B took the opportunity to highlight the importance of travel in architectural education during their responses to the question of student backgrounds. However, a slightly different aspect was interjected into the School B faculty responses, in that they considered the state within which School B was located to be somewhat of a detriment to students' educations. Kristopher, an undergraduate and graduate studio instructor who had been at School B for 20 years and has taught as a visiting instructor at Pratt, Columbia, and University of Texas at Austin, discussed how illuminating travel has been for his students at School B[47]. He was involved in coordinating a trip to Tokyo in 2006 for the 3rd year undergraduates, which he thought was a great success for them, "since a lot of these students have never left the state, let alone the country.[48]" Placing the importance of travel within the context of living in this particular state he said, "being isolated here [in this state] makes it that much more important to broaden the experiences [of students] because we have so few examples of architecture of substance."

[47] In fact, he had proposed a travel program to the program director that had an "ever expanding radius of travel which goes along with whatever year the student is in." For example, he suggested that travel within a 500 mile radius would be appropriate for first year students, and perhaps the next year, take them a bit farther to cities on the west coast, and by the time they are in the graduate program, it should be trips to distant locales such as London, Tokyo, and Paris

[48] Kristopher made no mention of how these trips would be funded and that they may be cost prohibitive to some School B students. For instance, the 3rd year UGs at School B took a trip to Japan the previous year, at a cost of $2700 per student.

Kyra, who coordinated the first year undergraduate studios, expressed a similar sentiment in acknowledging the limitations she saw for students who grew up in the state. She referenced one student in particular from a very small town in the state (population: 1800) who "has a wonderful eye," and wondered how he developed the keen aesthetic sense that he has in such limited surroundings and joked that perhaps he got it from "watching television." She expanded on this subject, talking more broadly about students who are from the state:

> they're at a disadvantage. There's not a lot of great architecture to look at or a different kind of architecture, there's a sameness to everything. So they can't imagine that a door could be any other size than a standard door; they just can't imagine, their imagination is stunted.

The other theme of negativity surrounding discussions of students with School B faculty was that of "struggling students." Half of all faculty interviewed mentioned some variation on the problem of students "not getting it" in design studio, leading to either the student or the faculty or sometimes both of them questioning whether or not they belong in architecture. When School B faculty talked about students having difficulties in school, they were specifically referring to their work in design studio.

Garrett, a graduate studio instructor, was one of the School B faculty who spoke at length about this issue[49]. His approach is to let the students who are having a difficult time in studio to come to him; this is usually precipitated by a "bad grade" that he has given them. He tries to be sensitive to students' needs and egos in such discussions and explains that it is his goal as an instructor in architecture

> …to help someone understand that this part of the architectural profession [design] might not be the best use of their skills and then what are other areas. There are certainly a broad range of jobs that people can do in architecture, that are not necessarily the designer role, that are highly valued and at a lot of firms, people will be paid more for being competent in things like specs, stuff that's very valuable in terms of whether the firm goes under or not.

[49] Garrett was favorably mentioned by a number of graduate students who were interviewed for this research. Even though Garrett plainly expressed his disappointment in the lower caliber of student he has been teaching in the last few years to me, the students who I interviewed were seemingly unaware of these disappointments of his.

Garrett continued to explain that he does want to support the student who recognizes that they may be behind their peers in terms of acquired skills but they also want to put forth their best effort to develop their own skill set as much as possible. In referring to these particular students who want to continue in architecture, he made a revealing comment about School B, which developed into a larger evaluation of the profession:

> I think there is room for that student, *especially at a school like this* [italics added]…And you know, who's to say? It's quite interesting in fact, students who I wouldn't consider the strongest design students…who might be a mediocre designer for lack of a better word, can be very successful in the profession. Because there are a lot of people out there looking for mediocre design and if they are personable, hard working and have those sort of business skills, I mean there's a lot of room for a good, competent, what people might call 'background buildings.' I think in a sense there's a real need in the architectural profession and in the schools probably to value that kind of work.

At this point in the interview, it is unclear what exactly Garrett meant by "a school like this," but at the end of the interview, we again revisited the issue of "struggling students," in which he made further assessments of School B students[50]. Garrett explained that he feels the graduate students School B has been accepting in the last few years are not as strong as they seemed to be in the past. He speculated that it might be because the majority of students are working outside of school and as a result, student work is suffering. He did recognize a few "outstanding" students in the past but even they have been "self-limiting" to some extent. Speaking of these students, he said:

> …they really could push themselves further out there in terms of being a designer and open themselves up to the possibilities. [But] for whatever reason, whether its family or they're comfortable where they are and feel competent in what they're doing and they don't want to press it, I'm somewhat disappointed. I understand because maybe if they really were that student they'd be off at Columbia [University] or somewhere really pressing themselves to the limits.

[50] As was explained in Chapter 3, I employed a snowball sampling technique, asking several faculty and students at both schools to recommend other students for me to interview, particularly those who they would consider either successful or struggling. Garrett was the only person who was uncomfortable naming names for either category; other faculty and students at School B gave recommendations for both categories, whereas at School A, everyone only offered recommendations for the "successful" category.

In a similar vein, Ted, coordinator of the fourth year UG design studios, made a distinction between School B students and students at an Ivy League school. For the interview question of *What do you think it takes to succeed in architecture school*, Ted talked extensively about how a student needs to be "inspired" in order to succeed. I asked him further about his role in fostering inspiration as an instructor, to which he replied that it is his job to "give them a plethora of experiences to get them motivated," and he expanded on the differences he has seen with students at School B compared to the students at Columbia where he completed his M.Arch degree, in that "our students don't really have access when they come into the program." Asking for clarification on this term "access," Ted replied:

> Yeah, maybe access isn't the right word, maybe it's they're not very worldly in terms of having the kind of travel experience that an individual at an Ivy League school would have. You can reference a European model or city or something like that, and the student at the state school has a hard time understanding that; there has to be an education of that in order to be able to digest it. Whereas at an Ivy League institution, you can say, well have you looked at the Louvre in Paris, and of course, they have probably been there, or they have the ability and wherewithal to go and research that.

He did qualify his response that he was making broad generalizations and there are examples of students who do have such "worldly knowledge" at state institutions as well. This issue of contrasting School B students with Ivy League students emerged again later in the interview during our discussion on the importance of students' backgrounds, in which Ted was explaining the advice he has offered his undergraduate students on pursuing graduate programs. He hinted that although School B "is always in the mix" of the discussions he has with students, perhaps the administration would like him to prioritize it even more. But Ted does not recommend School B for all of his students and said:

> …if I think they have the ability and they have interests that are expanding beyond the regional kind of condition we have here, I will say, 'Maybe you should think about going to New York or have you thought about Berkeley or LA?' to give them the opportunity to gain a skill set that perhaps our institution cannot give them or experiences our institution cannot give them.

In an effort to understand to whom Ted recommended School B and to whom he recommended more prestigious schools, I asked him for particular instances of when he made such recommendations to students. He recalled having a few "really phenomenal students" to whom he recommended going outside the country to London or to Rice University for graduate work and he estimated that maybe 5% of School B students are at such a high level of achievement that he would recommend such institutions. Many of his students are "good students, but perhaps would be more successful at a state institution" and he suggests other regional state schools to them. Finally, he believes some students have no desire or interest to ever leave the state and he respects their decision to stay at School B for graduate work.

Both Garrett and Ted's comments reflect their somewhat lowered estimation of School B students when comparing them to students at other institutions. Their interviews, in conjunction with Kyra and Kristopher's, indicate perhaps an atmosphere of lowered expectations at School B for their students simply because they are "School B students." This finding will be more fully examined in Chapter 10, citing relevant studies of how teachers' expectations of student performance interact with a student's and an organization's habitus to shape student outcomes.

Ideal Curriculum

For questions of the students' *Ideal Curriculum*, students evaluated 14 aspects of their curriculum, regarding how much emphasis they would *ideally* have in their curriculum. The table below presents the one statistically significant ($p<0.05$) item for School A; there were no significant items for School B. With the exception of the one significant item at School A, all responses among clusters within both of the schools are very similar. Even though *Historic Preservation* was significant at School A with Cluster 3 wanting the most emphasis in their ideal curriculum, their mean rating was still less than 3.0, *Somewhat important*.

Ideal curriculum	A1	A2	A3		B1	B2	B3
Historic preservation	**1.96**	**2.00**	**2.62**		2.65	2.69	3.33

Table 5.23: Mean responses to questions of *Ideal Curriculum* for School A and B
Bold: $p<0.05$

Questions of *Goals/Motivations*

The previous analysis of questions of *Studio Experiences, Satisfaction* and *Problematic Experiences* primarily discussed how the pattern of responses for Clusters 1 at School A and at School B differed from their corresponding Clusters 2 and 3. Examining students' responses to questions in the category of *Goals and Motivations*, a very different pattern emerges for School A; Cluster 2 demonstrates a different pattern of responses and separates from Clusters 1 and 3, as confirmed in the MDS plot below. There is a tight cluster of points for School A Clusters 1 and 3 with the overall mean response for the School A sample, reinforcing how differently Cluster 2 at School A responded to the questions of *Goals and Motivations*. Again, the points for School B are quite distant from one another, although the point for Cluster 2 is fairly close to the overall mean responses point for School B. A different dynamic emerges for School B as well in this MDS plot in that it is now School B Clusters 1 and 2 that are approaching the School A region of the plot and it is their Cluster 3 that is most distant from all other points.

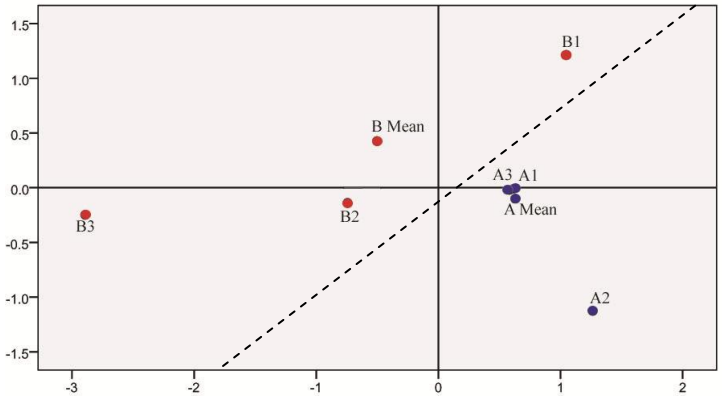


Figure 5.10: MDS plot by Cluster Means on questions of *Goals and Motivations*
Stress = 0.04242 RSQ = 0.99354

Mean responses to all 27 questions in this category will be presented to understand how School A Cluster 2 responds differently from Clusters 1 and 3. The table below lists all *Goals and Motivations* questions, with statistically significant differences ($p<0.05$) in bold.

Although only two items were statistically significant in the table below, there seems to be an overall pattern of response for School A Cluster 2 that perhaps identifies

them as less motivated by social interests than School A Clusters 1 and 3. In addition to the two significant items that they rated as the least interested in and motivated by (*Opportunity to help people* and *To work for an advocacy group/non-profit*), they also had the lowest mean responses on the following items, all relating to social interests: *Participation in community action*, *Opportunity to solve important problems/work for social change*, and *To work for a government agency*. The most desirable work scenario for School A Cluster 2 is *To work in a small firm* with the highest mean response of all clusters. Cluster 2 also rated *To teach architecture at the college level* higher than Clusters 1 and 3, with a mean response of 3.19. In the following chapter, which will examine gender differences within clusters for each case study site, we will see that it is specifically the Cluster 2 males at School B who have the lowered interest in social interests. Qualitative data from interviews with students and faculty at School A will be discussed in the next chapter to further explore how Cluster 2 males differ in this area.

School A: Motivations	A Clus1	A Clus2	A Clus3
Fame	1.85	1.44	1.57
High income potential	2.37	2.06	2.21
Intellectual challenge	3.30	3.56	3.43
Opportunity to be creative	3.74	3.87	3.79
Job security	2.70	2.81	2.68
Ability to be a licensed architect	3.38	3.44	3.18
Independence	3.20	3.00	3.07
Status or prestige	2.38	2.38	2.32
Participation in community action	2.92	2.44	2.82
Wide availability of jobs	2.42	2.50	2.36
Opportunity to solve important problems or work for social change	3.15	2.63	3.25
Opportunity to create new knowledge or do research	2.92	2.94	3.25
Opportunity to help people	**3.38**	**2.69**	**3.36**
Goals			
To work alone in private architectural practice	2.26	2.69	2.61
To work in a small firm's private architectural practice	3.07	3.56	3.21
To work in a medium to large firm's private architectural	3.04	2.94	3.36

practice			
To work in an architectural and engineering firm	2.85	2.50	2.61
To work in an interior design firm	2.19	2.38	2.48
To work in a landscape architecture firm	2.13	2.25	2.46
To have an architectural position in a corporation	2.30	2.19	2.32
To work for a government agency, e.g., housing agency	1.89	1.50	1.96
To work for an advocacy group or non-profit	**2.04**	**1.63**	**2.38**
To work in a private consulting practice or research	2.19	2.50	2.29
To teach architecture classes at the college level	2.93	3.19	2.82
To work in construction/contracting	2.07	1.94	2.14
To work in a design build firm	3.15	3.19	3.00
To work as a real estate developer	2.00	2.00	1.86

Table 5.24: Mean responses to questions of *Goals and Motivations* for School A Clusters
Bold: p<0.05

There was strong agreement from all clusters at both schools that the single most motivating factor for pursuing an education in architecture is the *Opportunity to be creative*. All clusters also agree, with the exception of School A Cluster 1, the second most motivating factor is the *Intellectual challenge*. School A Cluster 1 had two responses tied for the second most motivating factor: *Ability to be a licensed architect* and *Opportunity to help people*, although *Intellectual challenge* was very close behind.

All clusters from both schools also agree, with the exception of School A Cluster 2, that the *Opportunity to help people* is one of their top three motivating factors in pursuing an education in architecture. School A Cluster 2 rated *Ability to be a licensed architect* as their third most motivating factor after *Opportunity to be creative* and *Intellectual challenge*.

On the 15 *Goal* items describing potential future job scenarios, there were four significant differences among the clusters at School B. All 15 items are listed in the table below with statistically significant items in bold.

School B: Goals	B C1	B C2	B C3
To work alone in private architectural practice	2.65	3.13	3.33
To work in a small firm's private architectural practice	3.12	3.31	3.50
To work in a med-large firm's private arch practice	**3.35**	**2.63**	**3.00**

To work in an architectural and engineering firm	**3.00**	**2.13**	**2.83**
To work in an interior design firm	2.47	2.06	2.50
To work in a landscape architecture firm	2.18	1.88	2.50
To have an architectural position in a corporation	2.35	2.25	2.83
To work for a government agency, e.g., housing agency	2.12	1.69	2.17
To work for an advocacy group or non-profit	2.12	1.94	2.50
To work in a private consulting practice or research	2.35	2.06	3.00
To teach architecture classes at the college level	**2.29**	**2.63**	**3.50**
To work in construction/contracting	2.65	2.63	3.17
To work in a design build firm	**2.88**	**3.31**	**3.67**
To work as a real estate developer	2.47	2.19	2.50

Table 5.25: Mean responses to questions of *Goals* for School B clusters

School B Cluster 2 finds it much less desirable *To work at a medium-large firm's practice* or *To work in an arch-engineering firm* than their fellow students. All School B clusters rate *To work in a small firm's practice* as a relatively highly desired scenario, just as all School A clusters did. Some large differences emerge between School B Clusters 1 and 3 on the items of *To work alone, To teach architecture classes,* and *To work in a design build firm,* with Cluster 1 rating these as much less desirable. There seems to be more variation among the clusters for School B than for School A in this category of questions, which is reflected in the large distances among School B cluster groups in the MDS plot in Figure 5.10.

Conclusion

To reiterate, the demographic distribution for each cluster at Schools A and B are quite different both within and across schools, with the exception of the gender distribution for Cluster 1, with both having approximately a 2/3 majority of male students. On other variables of interest, the distributions at the two schools are quite different. Figure 5.11 below gives a quick summary of key findings in demographic distribution, noting who has a substantial presence in a particular cluster.

	Male/Female	Race/Ethnicity	Program Type
Cluster 1: School A	Male	White	Equal UG + M.Arch (2Gs)
School B	Male	Minority	UGs
Cluster 2: School A	Female	White	Equal UG + M.Arch (2Gs)
School B	Equal M + F	Minority	UGs
Cluster 3: School A	Female	White/International	UGs
School B	Equal M + F	White	Equal UG + M.Arch

Table 5.26: Summary of demographics of clusters

The following chapter will further break down the clusters by gender, identifying the differences and similarities that arise between genders among clusters both within and across schools. As was referenced in this chapter, there were some interesting differences that emerged between genders, especially for School A Cluster 2 and School B Cluster 3. Interviews were reviewed to understand the particular point of view that was expressed by the gender who responded quite differently. We saw how School B Cluster 3 females strongly disagreed with the statement *Critiques are respectful and constructive* by their responses on the survey, but then interviews were cited to more comprehensively understand why they felt so strongly on this issue. Also, School A Cluster 2 males responded with little interest to items of social/community issues on the category of *Goals and Motivations* survey questions and the interviews helped us to at least speculate on the reasons behind their lack of interest. The next chapter will continue examining differences between genders within clusters, building upon key differences that were identified in this chapter.

Chapter 6

Analysis by Gender within Clusters

Introduction

To reiterate from Chapter 5, certain patterns emerged when examining differences among the clusters within each case study site. At both Schools A and B, generally Clusters 1 were least satisfied, Clusters 3 were most satisfied, with Clusters 2 usually close behind Clusters 3's level of satisfaction on questions of *Studio Experiences, Problematic Experiences* and *Satisfaction*. One of the most interesting differences that emerged among the clusters at School A was on questions of *Goals and Motivations*, in which Cluster 2 answered quite differently from Clusters 1 and 3, seemingly less motivated by social concerns in their pursuit of an architectural education. The last chapter offered a comparison of groups defined by cluster membership, but alluded to the fact that further breakdown of the clusters by other characteristics of interest, such as gender, program type, race and ethnicity, will also be addressed to have a thorough understanding of the clusters' dynamics at each case study site.

The present chapter will primarily focus on the role of gender among clusters within and between schools. The categories of survey questions (*Studio Experiences, Satisfaction, Problematic Experiences, Goals & Motivations, Ideal Curriculum*) will be analyzed with special consideration given to those items which produced statistically significant differences in the previous cluster analysis. The purpose of this analysis is to understand how gender and cultural capital (i.e., cluster membership) interact to shape students' experiences in their education. This analysis will primarily consider differences by gender within clusters at each school, e.g., how do School A Cluster 3 females' mean responses compare to School A Cluster 3 males. It will also address differences by gender across clusters when appropriate, e.g., what similarities or differences are there among females of the three clusters at School A? Statistical analyses in this chapter will again be one-way ANOVAs as well as Multi-Dimensional Scaling (MDS), to be

supported by qualitative data from interviews where appropriate. Findings for each school will be presented separately first and then both schools will be discussed in a final comparative summary.

Demographics

School A

The distribution of gender within each cluster at School A is shown in Table 6.1 below. Although there is approximately the same number of males as females in the total sample, none of the clusters are evenly distributed by gender. Clearly Cluster 1 is overwhelmingly male, and Clusters 2 and 3 are overwhelmingly female. The chi-square for this distribution was statistically significant with $p<0.001$. The imbalance by gender within the cluster distribution at School A provides support for conducting the present analysis focusing on the role of gender.

School A	Males	Females	Row Totals
Cluster 1	20 (74%)	7 (26%)	27 (100%)
Cluster 2	6 (35%)	11 (65%)	17 (100%)
Cluster 3	8 (27%)	21 (73%)	29 (100%)
Missing Cluster membership	4	4	8
Total	38 (47%)	43 (53%)	81 (100%)

Table 6.1: Gender distribution within cluster membership at School A

School B

Table 6.2 below presents the distribution of the student sample by gender and cluster at School B. There were slightly more males than females sampled at School B (56% compared to 44%) and the individual clusters generally have a similar pattern of distribution by gender, with the exception of Cluster 3 which has an even distribution of males and females. The largest groups by far at School B are Clusters 1 and 2, as seen in the row totals of the final column. The Chi-square test was not statistically significant for this distribution at School B.

School B	Males	Females	Row Totals
Cluster 1	11 (65%)	6 (35%)	17 (100%)
Cluster 2	9 (56%)	7 (44%)	16 (100%)
Cluster 3	3(50%)	3 (50%)	6 (100%)

Missing Cluster	3	4	7
Total	26 (56%)	20 (44%)	46 (100%)

Table 6.2: Program type, gender, and cluster membership at School B

The distribution of Cluster 3 at School B is problematic for several reasons and caution will be exercised when interpreting their responses. To begin, the total sample size of Cluster 3 is very small with only six participants. Those six participants are evenly distributed by gender with three males and three females; all Cluster 3 males are UGs and all Cluster 3 females are Master of Architecture students. On all four MDS plots in this chapter, the School B Cluster 3 males and females have the furthest distance between them. When ANOVAs were conducted for significant differences between genders within clusters, Cluster 3 had only three significant differences, whereas Clusters 1 and 2 each had five. The small sample size of School B Cluster 3 coupled with the conflation of the gender and program type variables makes interpretation of their findings very limited.

Studio Experiences and Satisfaction: Multi-Dimensional Scaling (MDS)

On the 21 questions of *Studio Experiences*, the greatest differences between the genders at School A are for Cluster 1 as seen in the MDS plot below in Figure 6.1; males and females in Clusters 2 and 3 at School A are fairly similar in their mean ratings on questions of *Studio Experiences*. There is a relatively clear school differentiation with a well-defined grouping of School A points on the left side of the plot and the School B points on the right, demarcated by the grey diagonal line. The School A Cluster 1 males are located in the School B region and the School B Cluster 3 males are located with the School A grouping; each group is highlighted with a blue and red box respectfully. Both males and females of School B Cluster 1 are quite distant from all other points, as are School B Cluster 3 females. This pattern will repeat for these same groups from School B with them being on the periphery in the upcoming MDS plots.

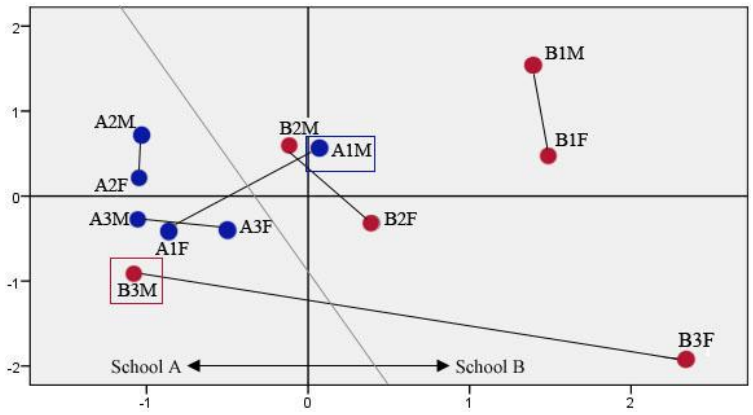


Figure 6.1: MDS plot for questions of *Studio Experiences*
Stress = 0.09476 RSQ = 0.96459 (Labels: School A/B, Cluster 1/2/3, Gender M/F)

Although the grouping of points is not as tight in the MDS plot for questions of *Overall Satisfaction* (Figure 6.2 below) as it is for questions of *Studio Experiences*, there is still a clear school differentiation as indicated by the grey diagonal line. There are a number of similarities to discuss between Figures 6.1 and 6.2. In Figure 6.2, School A Cluster 1 again has the greatest distance between genders for School A, with the males located in the space dominated by School B points. Again as was evident in the previous MDS plot, the School B Cluster 3 males are located in the space dominated by School A points. Also similar to Figure 6.1 is the separation of both males and females of School B Cluster 1 as well as School B Cluster 3 females from all other points. The next section will discuss the results from the one-way ANOVAs on questions of *Studio Experiences* and *Satisfaction* to further understand the distance between these groups and the other students on the MDS plots.

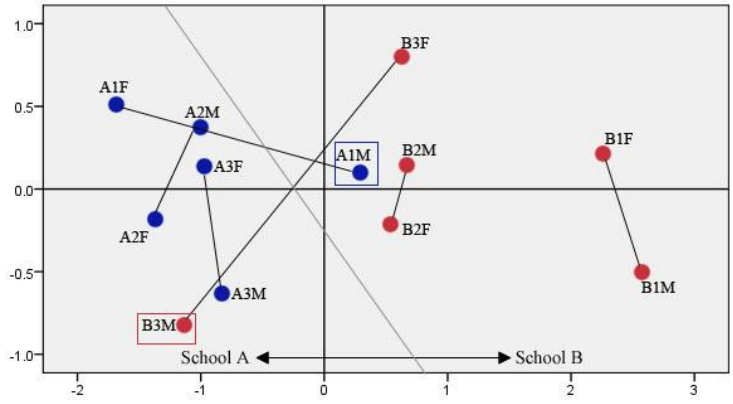


Figure 6.2: MDS plot for questions of *Overall Satisfaction*
Stress = 0.04778 RSQ = 0.99081
Label: School A/B, Cluster 1/2/3, Gender M/F

Studio Experiences and Satisfaction: One-way ANOVAs

This section will selectively present comparisons of mean responses among the six groups of students (males and females of the three clusters) at each school to the two banks of questions on *Studio Experiences* and *Satisfaction*. One-way ANOVAs will be presented to support and further define the key points that were made regarding the MDS analyses in Figures 6.1 and 6.2. The eight groups that are of particular interest for these two banks of questions are both School A's and B's Clusters 1 and 3. There were no significant differences found between genders for either school's Cluster 2. For the sake of clarity in presenting analyses and highlighting important differences, attention will instead be focused on Clusters 1 and 3 at each school.

School A Cluster 1

When mean responses for *Satisfaction* and *Studio experiences* of School A Cluster 1 are examined by gender, it is clear that the males respond less favorably. Before mean responses are reported, a brief discussion of the *Studio Experiences* questions is warranted. There are a total of 21 *Studio Experiences* questions, with four of them relating to students' perceptions of positive and negative dynamics in their program. The remaining 17 questions measure both students' perception of curricular emphases in their program and their beliefs of what it takes to succeed in architecture school. The four questions measuring the students' assessment of program dynamics can be conceptualized as more personal interpretations of the program, which is in contrast to the more objective assessment of their curriculum that they are doing for the remaining 17 items. For example, students are asked to what extent they agree with the statements *Critiques are respectful and constructive* and *Studio projects emphasize techniques of building* in this broad *Studio Experiences* category of 21 questions. The former question belongs to the subgroup of four questions (noted from here forward as *Dynamics assessment subgroup*) and the latter belongs to the subgroup of 17. Lower mean responses to the former question imply disrespectful behavior on the part of the faculty, whereas lower mean responses to the latter question relate only to perception of curricular emphases. The four items in the *Dynamics assessment subgroup* in which students rated their level of agreement are as follows: *Architecture students are isolated,*

There is considerable unity and academic sharing, The program is a conducive environment for new ideas, and *Critiques are respectful and constructive*.

The table below contains all items from the *Studio Experiences* and *Satisfaction* categories in which there was at least 0.33 differences in mean responses between the genders for School A Cluster 1, with statistically significant differences ($p<0.05$) in bold. Note that all four of the items from the *Dynamics assessment subgroup* produced differences of at least 0.33 between the genders for School A Cluster 1. Of the 13 items in the *Satisfaction* category of questions, eleven are listed in the table below with differences of at least 0.33. Although only four items reached statistical significance when conducting one-way ANOVAs, there is clearly an overall pattern of unfavorable responses in the Cluster 1 male group.

On the item regarding satisfaction with *Receiving a well-rounded education*, Cluster 1 males respond much less favorably than the females. Later in this chapter, when responses between the genders are compared for School A Cluster 3, we will again see a very large difference between the genders for this item[51]. In a number of interviews with male students at School A, they expressed their disappointment with what they perceived to be "too much theory" in their curriculum. Even though females also recognized that their school placed a lot of emphasis on theory, they were satisfied with their curriculum. Perhaps the differences in survey responses on satisfaction with receiving a well-rounded education between genders could be attributed to a difference in beliefs of what is a balanced curriculum in architectural education. Interviews will be referenced from School A at the end of this section on *Studio Experiences and Satisfaction* after findings from School B have been presented, to further explore the proposition that males and females of Clusters 1 and 3 at School A have different expectations for their curriculum.

[51] There is no substantial difference between the genders for School A Cluster 2 on this item and so, their responses will not be discussed.

Studio Experiences: School A	Clus1M	Clus1F
Studio projects emphasize issues of social relevance	2.75	3.14
Students work closely with clients/users*	**1.20**	**2.00**
An emphasis is placed on decision making	3.10	3.43
Instructors accept diverse ways of thinking	2.90	3.29
Studio Experiences: Dynamics assessment subgroup		
Critiques are respectful and constructive	**2.63**	**3.36**
School is conducive environment for new ideas	3.05	3.43
Architecture students are isolated	2.21	1.57
There is unity and academic sharing	2.95	3.43
Satisfaction (4 point scale)		
How satisfied with your choice of arch as a major	3.20	3.86
How satisfied with your choice of arch as a career	3.20	3.57
How satisfied with your choice of arch at this university	**3.05**	**3.79**
How satisfied that you have received a well-rounded educ.*	**2.74**	**3.79**
How satisfied with faculty: Currency in field	3.05	3.71
How satisfied with faculty: Relevancy to profession	2.80	3.29
How satisfied with faculty: Overall teaching ability	3.00	3.71
How satisfied with faculty: Ability to provide inspiration	3.00	3.50
Satisfaction (5 point scale)		
Would you still decide to attend this university?	3.90	4.71
Has your education improved your quality of life?	4.05	4.71
How prepared for your long-term goals are you?	4.00	4.43

Table 6.3: Items from *Studio Experiences* and *Satisfaction* with differences of at least 0.33 for School A Cluster 1 Bold: p<0.05, Bold*: p<0.01

School B Cluster 1

When examining responses to questions of *Studio experiences* and *Satisfaction* for School B, Cluster 1 exhibited a similar pattern of response to Cluster 1 at School A, generally being the most dissatisfied as a group. Noting this pattern of negativity for School B Cluster 1 as a whole helps us to interpret the MDS plots of Figures 6.1 and 6.2, to understand why both males and females of Cluster 1 were separated from the other School B points. When comparing mean responses for School B Cluster 1 males and females, there was generally agreement in their dissatisfaction. Only four items (listed in Table 6.4 below) had differences of 0.33 or more, with the males who having less

favorable responses. However, no statistically significant differences emerged for these items between the genders. Although there may be a similar dynamic occurring with both schools' Clusters 1 in that the males are more dissatisfied with their educations, apparently it is stronger at School B than at School A.

School B	Clus1M	Clus1F
Satisfaction		
How satisfied with your choice of arch at this university	2.46	3.00
How satisfied that you have received a well-rounded education	2.73	3.17
How satisfied with faculty: Ability to relate to students	2.36	2.83
How satisfied with faculty: Ability to provide inspiration	2.00	2.33

Table 6.4: Mean responses to questions of *Studio Experiences* and *Satisfaction* for School B Cluster 1 that produced differences >0.33 between the genders

School B Cluster 3

The other group of students who were separated by a large distance from other points on the MDS plots of Figures 6.1 and 6.2 were School B Cluster 3 females. As was stated at the beginning of this chapter, School B Cluster 3 is somewhat problematic because of its small sample size as well as the conflation of the gender and program type variables. Nevertheless, when mean responses were examined for these two categories of questions between genders of School B Cluster 3, a clear pattern of response emerged for the males, but not for the females. The males of this cluster consistently responded favorably to these questions, whereas the females did not have a clear pattern of positive or negative responses. Rather, there were some items they felt positively about and others they felt negatively about. For example, as was discussed in Chapter 5, they strongly disagreed with the statement *Critiques are constructive and respectful*, indicating their negative feelings, but also strongly disagreed with the statement, *Architecture students are isolated*, indicating their positive feelings. Even though one might expect to see such a pattern of response in other groups, School B Cluster 3 females appear to be the only ones who feel strongly positive about some aspects of their program and strongly negative about others.

Chapter 5 also referenced interviews with School B Cluster 3 females, specifically to understand their especially high rate of disagreement with the statement *Critiques are constructive and respectful*. They spoke freely about the unfortunate experiences they

had with faculty in reviews and how such experiences impacted them personally. But also in their interviews, they spoke very positively about their fellow students regarding the strong sense of camaraderie they experienced in their educations[52]. The interview data from Chapter 5 helped to explain more thoroughly the student-student and student-faculty interactions of Cluster 3 females than the survey alone could do.

School A Cluster 3

Although the distance was not as large between the genders for School A Cluster 3 as it was for School B Cluster 3 in the MDS plot of Figure 6.2, when one-way ANOVAs were conducted, two interesting statistically significant differences ($p<0.05$) emerged for questions of *Satisfaction*. These items are listed in bold in Table 6.5 below. Males and females of Cluster 3 were split on these two items, with males rating one more favorably and females rating the other more favorably. There was only one additional item in which there was a difference of at least 0.33 for Cluster 3, with females rating it slightly more favorably.

Although no students at School A mentioned any problems with *Approachability* with their faculty in the interviews, there apparently is a large difference between males and females of Cluster 3 regarding their satisfaction with this aspect of their faculty as shown by the statistically significant difference in mean responses in Table 6.5. Since there are no qualitative data to substantiate the quantitative findings for this item, I can only speculate as to why this difference between genders exists. Perhaps the male students of this cluster find it easier to approach faculty because there is a greater ratio of male to female faculty at School A. According to the most recent NAAB (National Architectural Accrediting Board) statistics from 2006, School A had a total of 49 full-time faculty, of which only 18 were female[53].

[52] These interview data will be discussed further in the following chapter that presents analysis according to Program type. Two (Christine and Mary) of the three Cluster 3 females spoke at great length about the connections they made with fellow students. These two students also happen to be 3Gs; their comments on this matter will be presented in the section of the following chapter on School B 3Gs' *Studio Experiences*.
[53] Source: http://www.naab.org/documents/. (Retrieved 03.22.10)

School A	Clus3M	Clus3F
How satisfied that you have received a well-rounded education	**3.00**	**3.60**
How satisfied with faculty: Approachability	**3.75**	**3.10**
How satisfied with faculty: Relevancy to the profession	3.00	3.35

Table 6.5: Items from *Satisfaction* questions with differences of at least 0.33 for School A Cluster 3
Bold: p<0.05

For the item of Satisfaction in *Receiving a well-rounded education*, females of School A Cluster 3 are substantially more satisfied than the males. This same difference was seen between genders of Cluster 1 at School A (see Table 6.3), with the females being more satisfied[54]. Fortunately, the interviews can provide some insight into this matter, as there was a difference in how males and females spoke about their educations specifically regarding the balance of theory with practical applications in their curriculum.

Interviews at School A

In interviews at School A, males often mentioned their disappointment with the lack of technical skills acquired in their educations during their interviews, whereas the females often spoke of their satisfaction with the curriculum. For example, Melinda (a 3G, Cluster 3, with an undergraduate degree in Environmental design) said,

> You can find what you want here [at School A]. You just have to seek it out in a way and I think I've always done more theory and representation design, that kind of route, so I invested a lot of my course hours into those classes. But I think if you were really into Structures or ET [Environmental Technology], then you would take more of those classes and get somewhere.

Melinda assumed that since she has been pleased with the classes that are offered in her area of interest (theory), then everyone at School A should be able to find that same sense of satisfaction in their areas of interest.

Donald (a 3G, Cluster 3, with an undergraduate degree in Political Science and a degree from Culinary school) had a very different experience in that he expected "a lot

[54] Ideally, interviews with Cluster 1 males would have additionally supported their low survey rating of "well-rounded education," but they did not. However, they did express their dissatisfaction with the lack of technical aspects in their educations on the survey's open-ended comments section. Such comments will be quoted in the final chapter of this dissertation.

less theory and a lot more emphasis on building or construction." He still felt satisfied with his education, and explained that even though he might have chosen to have less theory in his ideal architectural education, he still enjoyed the "theoretical component." He explained that he did not know much about the 3G program before starting at School A and did admit "if I was an undergraduate now, and if I was picking a grad school now, I might make a different decision."

Although Matthew (a 3G, Cluster membership unknown, undergraduate degree in Mechanical Engineering) did not take part in the survey of 2008 for he was interviewed in 2009, he offered a clear summary of what was lacking in the curriculum for him. He described himself throughout the interview as "technically minded." In response to the interview question of *To what extent has this architecture program met your expectations*, he prefaced his response by saying that overall he has been satisfied, but explained his disappointment with the lack of technical exposure he's had:

> What wasn't met [of my expectations] was the technical side. It's been uninteresting and it could be a lot more provocative. For me, I'm really interested in machines still. I feel like the education here is a check in the box for all of these things. I understand the Intro courses are simple and straightforward, but the Concrete and Steel classes are kind of lame. I thought classes would be a lot more inspiring in trying to understand how these technical systems work. And with the sustainability issue, it would be easy to get students excited, but there isn't that class and with studio culture, it isn't there either.

Contrary to what Melinda assumed, that everyone's interests could be met at School A, Matthew is an example of someone who was unable to satisfy his interests with the given curriculum. Even though Matthew expressed this dissatisfaction with the curriculum, he also stressed how impressed he was with the faculty at School A. In fact, he spoke especially highly of the studio faculty precisely because he knew many of them did not share his interests, yet they still respected his interests and engaged him on his terms in the design process. For example, he said of his previous studio instructor, Paul (who was also interviewed for this research) was "amazing. I really think few people can match the energy he puts into you. It was a great semester for me even though it was really nowhere near my interests."

These interview excerpts illustrate the gender difference in satisfaction with their educations at School A. Even though the males of Clusters 1 and 3 had statistically significant lower levels of satisfaction on the item of *Receiving a well-rounded education* than the females, they still rated their satisfaction with this item close to 3.0 (*Somewhat Satisfied*). A number of males interviewed did feel their educations were lacking in technical skills, but still overall felt pleased with their educational experiences.

Ideal Curriculum

The differences between the genders for School A Cluster 1 are further reinforced by their responses to particular aspects of their *Ideal Curriculum*. This group had two statistically significant differences ($p<0.05$) between the genders and School B Cluster 3 had one significant difference, as seen in bold in the table below. For both significant items at School A, *Architectural history* and *Theory & Criticism*, Cluster 1 females wanted more emphasis than the males. At School B, Cluster 3 males want considerably more emphasis on *Theory & Criticism* than the females do.

Ideal Curriculum		A1	A2	A3		B1	B2	B3
Architectural history	Male	**2.40**	2.50	3.13		2.82	3.22	3.67
	Female	**3.07**	2.73	2.90		3.33	3.43	3.33
Theory and criticism	Male	**2.80**	3.33	3.50		3.00	3.33	**3.67**
	Female	**3.64**	3.00	3.48		3.33	3.43	**2.33**

Table 6.6: Differences between genders within clusters on questions of *Ideal Curriculum*

The MDS plot for students' mean responses to questions of their *Ideal Curriculum* is below in Figure 6.3. There is a clear school differentiation as indicated by the diagonal dashed line, with School A on the right and School B points on the left. School A Cluster 3 has the smallest distance between their males and females, indicating the most similar pattern of response between genders of all of the clusters at both schools. School A points are relatively close together, with the exception of the Cluster 1 males in the lower right quadrant of the plot. School B points are more dispersed, which has been and will continue to be the typical pattern in MDS plots for School B students; but in this particular plot, it is the Cluster 3 females and the Cluster 1 males who are separated by a very large distance from all other points.

As has been mentioned, School B Cluster 3 females are a very small group of three, all of whom are non-traditional students in terms of their ages (two students were in their mid-50's and one student was in her mid-30's). When looking at their responses to *Ideal Curriculum* questions, one way in which they differ substantially from all other students from both schools is in their relatively low rating of *Design Studio* at 3.67. They had three curricular aspects rated more important than *Design Studio*, all tied at 4.0: *Drawing/Graphic skills*, *Computer drafting*, and *Environmentally Responsible Design*. These differences, in addition to their much lower rating of *Theory* as seen above, likely account for their distant placement in the plot.

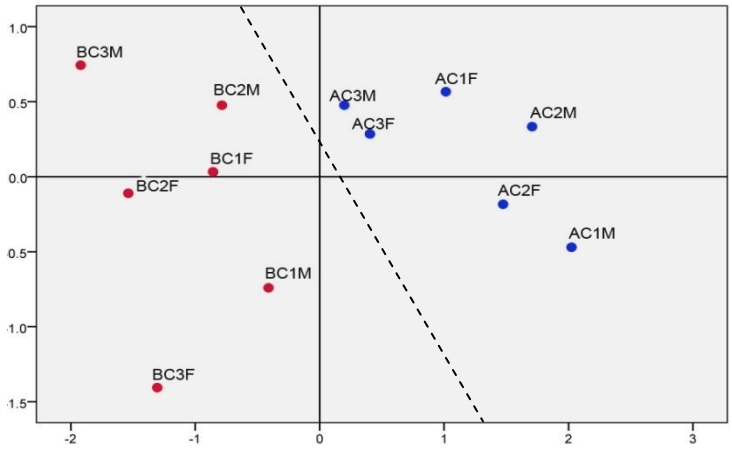


Figure 6.3: MDS plot of mean responses to questions of *Ideal Curriculum*
Stress = 0.05381 RSQ = 0.98530
Label: School *A* or *B*/Cluster *1*, *2*, or *3*/*M*ale or *F*emale

The Cluster 1 males from both schools have a few areas in common in their ratings of their *Ideal Curriculum* in that both desire less *Architectural history* (noted above as a statistically significant difference for this group at School A) and less *Socio-cultural issues* when compared to their fellow students. Both of these groups differ from their respective fellow students in wanting subtly less or subtly more emphasis in particular areas. For instance, School A Cluster 1 males ideally want less *Theory* (statistically significant) and less *Programming*. Their top three curricular priorities in descending order are *Design Studio, Environmentally responsible design* and *Drawing* tied with *Structures* which are in line with what other School A students want also. School B Cluster 1 males want less *Community design* and more *Professional Practice* compared to their fellow students. It is perhaps these subtle patterns of difference in

desired emphases that accounts for their pulling away from the majority of students at their respective school in the MDS plot.

Problematic Experiences: MDS

Comparing the MDS plot below in Figure 6.4 for mean responses to questions of *Problematic Experiences* to the previous two MDS plots, there is a similar pattern for School B, but a slightly different one for School A. School B Cluster 3 females again are very far removed, and both males and females of School B Cluster 1 are separated from all other points. Both genders of School B Cluster 2 as well as School B Cluster 3 males are approaching the clustering of School A points, with the School B Cluster 2 males being the closest. In the previous two plots, School A Cluster 1 males were separated from the remaining School A groups, but now for *Problematic Experiences*, they are located within the tight grouping of School A points as indicated by the blue oval.

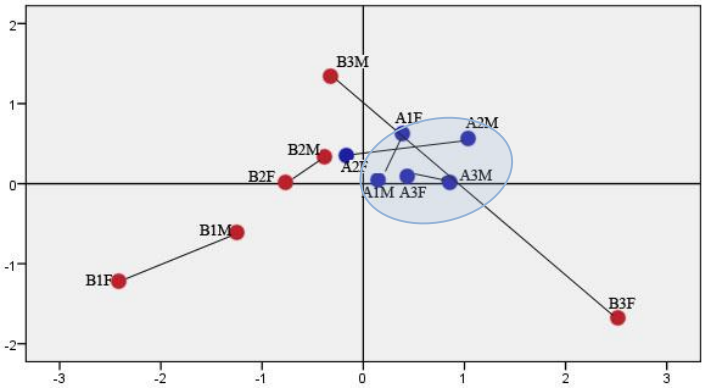


Figure 6.4: MDS plot of questions of *Problematic Experiences*
Stress = 0.09783 RSQ = 0.96844
Labels: School A/B, Cluster 1/2/3, Gender M/F

Problematic Experiences: One-way ANOVAs

In the following analysis of survey responses to items of *Problematic Experiences*, a brief overview will be given first for all clusters at both schools. This bank of questions is somewhat unique in that there were no statistically significant ($p<0.05$) differences between genders for any cluster group at School A and only four total significant items for the three clusters of School B. However, there are a number of subtle patterns that emerge from the MDS and One-way ANOVAs that deserve discussion. Only certain clusters and/or genders that produced substantial differences

will be discussed at length in the following sections, with interviews selectively referenced for support where applicable.

School A

Even though there were no statistically significant differences at School A on questions of *Problematic Experiences*, there was a subtle pattern of School A Cluster 2 females reporting more frequent problems than their male counterparts. In Figure 6.4, School A Cluster 2 females are the closest of all School A points to the School B clusters[55]. School A Cluster 1 males and females are evenly split on reporting frequent problematic experiences, i.e., on some items the females reported more problems and on other items the males reported more problems. School A Cluster 3 males and females responded quite positively and similarly on these questions, except for two items in which the females reported more frequent problems: *Lack of confidence in design/academic abilities* and *Little flexibility in course offerings*.

Examining responses across clusters on the item of *Lack of confidence in design/academic abilities*, all School A females, regardless of cluster membership, reported this as being a more frequent problem than their male counterparts, with mean responses for all groups shown in Table 6.7 below. Given this similarity in response among the three groups of females at School A, interview data will be referenced at this point with females from all clusters at this school to explore the factors contributing to the females' reported greater lack of confidence.

School A	C1M	C1 F	C2 M	C2 F	C3 M	C3 F
Lack of confidence	2.16	2.50	2.33	2.56	2.00	2.52

Table 6.7: Higher School A female mean responses to question of *Lack of confidence in academic/design abilities*

Interviews with Females at School A

In the student interviews at School A, especially on the question of *To what extent do you believe that students have innate design talent or learned skills or both*, the issue of competition came up quite frequently, usually with students expressing their insecurities in how they compare to their fellow students. Females seemed especially

[55] School B reports a much higher frequency of problematic experiences. The proximity of School A Cluster 2 females to the points of School B in Figure 6.4, indicates a similar pattern of response to School B and therefore, more problematic experiences.

aware of this issue, talking about how often they felt their work goes unrecognized. Ellen, an undergraduate student (Cluster 1) who transferred to School A from a local Midwestern community college, talked about how as a transfer student she felt "a little bit pushed aside" and "had to work that much harder to be recognized." She felt far too intimidated to work in studio with her fellow students and instead spent the majority of her first year working alone in her apartment. She raised the issue of some students getting treated differently in reviews because they were active in school organizations and the professors knew them. As she explained referring to these students, "…[they] get a different kind of review than someone who is just a nobody, somebody who is working and doesn't have the time to be in the different organizations." Although she believed these students do work very hard for the awards and praises they receive, but still "for the students who work hard and don't get that kind of recognition, it's discouraging. It's very discouraging."

Ellen perceived that there were some students who were "insiders" and therefore received preferential treatment based on this elevated status. Since she was not one of these students who received frequent recognition, she felt left behind, questioning her own abilities. In contrast, Amy, a 2G student (Cluster 2), talked about the insecurities of all students in architecture school, with everyone thinking that everyone else has special talents that they themselves lack. In responding to the question of innate talent versus learned skills, Amy expressed her belief in innate design talent but subsequently questioned whether or not she or anyone really had it. As she said:

> I feel like it comes easy to everyone but me, so I don't know, maybe everyone thinks that. I'm sure other people think that about me, that it comes easy to me, but not to them…so maybe no one has it and we're all just insecure.

Perhaps this phenomenon only found with the females regarding lack of confidence at School A may be related to the lack of female architecture faculty presence. As was discussed in the previous section in which Cluster 3 females rated faculty's *Approachability* significantly lower than their male counterparts, there were only 18 female full-time faculty out of a total of 49. Groat & Ahrentzen (1996) similarly found a relationship between the number of female faculty and issues of hierarchy and

competition in studio, in that such negative issues were more pronounced at those architecture schools which had a minimal female faculty presence. They concluded that a "critical mass" of female faculty has the potential to ameliorate such negative effects in studio. Overall, the females I interviewed at School A seemed to be more attuned and sensitive to the social dynamics of the program than the males I interviewed. This issue of feeling a lack of confidence in their design abilities is just one example of the females expressing how the dynamics of the program impacted their educational experiences. Another example of this was the female 2G students talking about tension they felt between the 2Gs and 3Gs at School A. This issue will be discussed at length in Chapter 7 which compares student responses based on program type membership (UG, 2G or 3G).

School B

School B's Clusters 1 and 3 will be profiled in this section, as they are the two groups at School B that had large distances between genders on the MDS plot in Figure 6.4 and produced substantial differences between the genders on survey questions of *Problematic Experiences*. Cluster 2 males and females responded quite favorably on this bank of questions; for the sake of clarity in presenting findings, School B Cluster 2 will not be discussed. The present section will first cover the statistically significant differences that emerged between the genders of Cluster 1, followed by an examination of the generally unfavorable responses shared by both genders in Cluster 1. It will conclude with a discussion of Cluster 3, particularly focusing on how differently the females respond.

Although there was an overall pattern of less favorable responses from School B Cluster 1 females compared to their male counterparts on questions of *Problematic Experiences*, only two items were statistically significant ($p<0.05$). Mean responses to those two items are shown in Table 6.8 below. There was complete agreement from all School B Cluster 1 males on these questions of discrimination toward women and minorities, in that they all responded that they experienced these things *Not at all*. When examining the raw data for the Cluster 1 females (N=6), responses are equally distributed among the choices of 1 (*Not at all*), 2 (*Only occasionally*) and 3 (*Somewhat frequently*).

School B: Problematic Experiences	Clus1M	Clus1F
Discriminatory attitudes or actions toward women in the prog.**	1.00	2.00
Discriminatory attitudes or actions toward minorities in the prog.**	1.00	2.00

Table 6.8: Statistically significant items for School B Cluster 1 on questions of *Problematic Experiences*
Bold: p<0.005**

To further understand the differences in mean responses to these two questions of discrimination, the racial and ethnic background of the School B Cluster 1 students is presented in Table 6.9 below. The male group is almost evenly split between minority (African-American and Hispanic) and white backgrounds. In contrast, the female group is overwhelmingly of racial and ethnic minority status (Hispanic and Hispanic-Native American). Perhaps it is the combination of being both female and a racial or ethnic minority that is contributing to the difference in responses between the males and females of this cluster. Unfortunately, there aren't any interviews to support this supposition, as these issues of discrimination were not raised by any of the students interviewed.

School B	African-American	Hispanic/ Hisp-Native Amer.	White	Missing	Total
Clus1 M	1	5	5	0	11
Clus1 F	0	4	1	1	6

Table 6.9: Racial and ethnic demographics comparing males and females of School B Cluster 1

Of the six statistically significant *Problematic Experience* items from analysis by cluster from the previous chapter in which School B's Cluster 1 responded most unfavorably, four of them show gender differentiation within that cluster, listed below in Table 6.10, with the females generally reporting more problematic experiences, especially in their dealings with the administration and faculty. The item of *Lack of positive contact with the dean* is not in Table 6.10, as males and females both responded very unfavorably. The following section will reference School B Cluster 1 interviews to better understand this issue of these students' difficulties with the administration.

Problematic Experiences: School B	Clus1M	Clus1F
Lack of support from administrative staff	2.36	*3.00*
Lack of advising from faculty	2.82	*3.17*
Lack of positive communication with the program director	2.45	*2.83*
Feeling arch degree not worth it	*2.91*	2.50

Table 6.10: School B Cluster 1 male and female responses to questions of *Problematic Experiences*
Underlined and Italicized: Gender with the higher mean response

Interviews with Cluster 1 at School B

At the time of the interviews at School B in the Spring 2008 semester, the School of Architecture and Planning had just moved into their new $23 million facility. There was a lot of discussion initiated by the students about the new building in the interviews, some feeling very positively about it and others feeling quite the opposite. Most of the negativity stemmed from students feeling a lack of ownership in the new space, feeling that their independence and freedom were now greatly hindered. No longer would couches, refrigerators, coffee makers or power tools be allowed in the new studio spaces; chairs and storage units (provided by the school) must be locked to desks when not in use. These restrictions were handed down from the Dean and Assistant Dean, thereby creating tension between the students and the administration; however, the current program director (who took her position in Fall 2006) was usually exempt from students' negative assessments of the administration.

Aiden, a 3G (Cluster 1) student, expressed his frustration with the administration during his time at School B and said, "I feel that the administration has done a really poor job of communicating with students…there has consistently been this kind of feeling of decisions being made behind closed doors." He specifically attributed this behavior to the Dean and Assistant Dean; he felt that this lack of communication had been consistent for the four years he was a student there and he offered another example: "…it's like the [wood] shop getting closed with no reason [given] why and then everyone thinks it's a conspiracy and that they [the administration] don't give a s*** about the students. And they do nothing to dispel that."

An undergraduate Hispanic-Native American student, Veronica (Cluster 1), talked about the disappointing interactions she has had with the Dean and Assistant Dean during her education. She was Vice President of Tau Sigma Delta (Architecture Honor society) and speculated that she had more interaction with the administration at events throughout the year than most of her fellow students. As she explained:

> For all the years that I've been here, I always smile and give a wave [to the Dean and Assistant Dean] and not once have they ever responded…They don't look you in the eye…I feel like I have good interactions with my teachers…but as far as office administration and the

> Architecture administration, who aren't teachers, it's been more disconnected or even non-existent, which is kind of a bummer.

Even though Cluster 1 had substantially higher mean responses to questions of problems with the administration compared to the other two clusters, a number of students from the other clusters also mentioned their disappointment with the administration (specifically the Dean and Assistant Dean) in their interviews. This may suggest that poor interactions with the administration are not specific to Cluster 1 at School B, but rather perhaps they are a larger problem which a variety of students have experienced. Chapter 4 examined this issue more closely by thoroughly discussing the workings of the administration at School B, citing email correspondence and faculty interviews to understand the tension that exists between the students and the administration.

School B Cluster 3

In the MDS plot of Figure 6.4, the distance between genders for School B Cluster 3 was the greatest of all groups. The one-way ANOVAs for males and females of Cluster 3 on questions of *Problematic Experiences* produced two statistically significant differences ($p<0.05$) as shown in bold in Table 6.11. The remaining items in the table below had differences of at least 0.33 between the genders, mostly with the males reporting more frequent problems. As discussed earlier, Cluster 3 has a small sample size (N=6) and so interpretation of their responses will be exercised with caution.

Problematic Experiences: School B	Clus3M	Clus3F
Financial Problems	**2.33**	**1.00**
Conflict between school and family	3.00	2.33
Lack of encouragement from instructors	2.67	2.00
Lack of peer support among students	2.00	1.00
Lack of advising/guidance from faculty	1.67	2.33
Aggressive, competitive students	2.33	1.33
Actions of a particular instructor discouraging	**1.00**	**3.33**
Little flexibility in course offerings	2.33	1.33
Limited job opportunities in architecture	2.33	1.33

Table 6.11: Differences in mean responses between the genders of School B Cluster 3 on questions of *Problematic experiences*
Bold: $p<0.05$

School B Cluster 3 females exhibit the same pattern of response in Table 6.11 as they did for questions of *Studio Experiences* and *Satisfaction,* in that they fluctuate between favorable and unfavorable responses. Upon closer examination of the items to which they respond favorably, we see that they involve peer to peer interaction. For example, the Cluster 3 females rated their experience of a *Lack of peer support among students* as *Not at all*. Then, looking at the items to which they respond unfavorably, we see they are relating to student to faculty interaction (e.g., *Actions of instructor discouraging*). Referring back to their responses on the previous two banks of questions, they follow this same pattern of being pleased with the social student dynamics and dissatisfied with interactions with faculty, responding with especially strong disagreement to the statements, *Architectures students are isolated* and *Critiques are respectful and constructive*. The previous chapter cited interviews with the Cluster 3 females regarding their negative feelings towards some faculty, painting a more complete picture of their experiences at School B.

Goals and Motivations: MDS

The final category of survey questions to discuss is that of students' *Goals and Motivations*; the MDS plot for mean responses to these questions is below in Figure 6.5. The most striking aspect of this plot is the integration of School A with School B points. In the previous three MDS plots, there was a clearly identifiable region dominated by School A points and a somewhat more ambiguous space where most School B points were found. By contrast in Figure 6.5, there is a cluster of points from both schools in the center of the plot (as indicated by a grey oval), surrounded by four points on the periphery. There are two observations to make regarding the points on the periphery. Firstly, three of those four points located outside the core cluster of points are School B points. Secondly, out of the total six groups of males from both schools, half of them (two from School A and one from School B) are located on the periphery. As will be seen in their mean responses, there are a number of items in which large differences exist between the genders of Cluster 2 at both School A and School B, as well as differences between Cluster 2 (either males, females or sometimes both) and the other Clusters at each school.

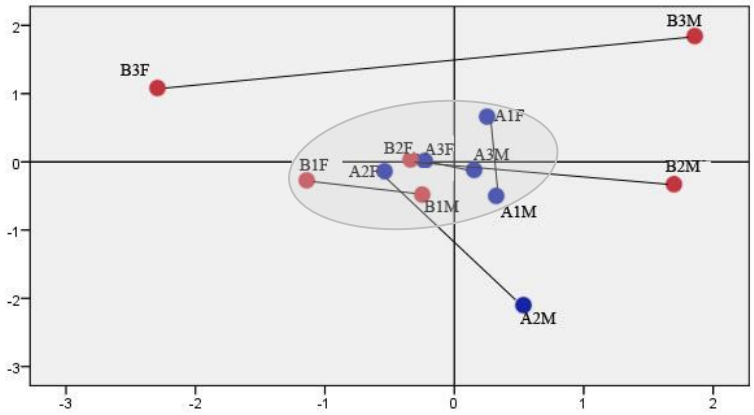


Figure 6.5: MDS plot of questions of *Goals and Motivations*
Stress = 0.09059 RSQ = 0.96944 (Label: School A/B, Cluster 1/2/3, Gender M/F)

Goals and Motivations: One-Way ANOVAs

The following section will reference one-way ANOVAs for questions of *Goals and Motivations* to further interpret the MDS plot of Figure 6.5. All clusters' responses will be discussed, but Clusters 2 from both schools will receive additional attention in the following sections. It is evident in Figure 6.5 that the Cluster 2 males from both schools are distant from the majority of points located in the center of the plot. The one-way ANOVAs will demonstrate that the Cluster 2 males of both Schools A and B exhibited quite a different pattern of response from not only the corresponding females within each school's Cluster 2, but also from the Cluster 1 and 3 students within their respective school. School B's Cluster 3 points are separated from each other and from all other points by a large distance, but given their small sample size, caution will be exercised when interpreting their responses.

School A

There were statistically significant differences ($p<0.05$) found with one-way ANOVAs between genders for all clusters at School A. Cluster 1 had the greatest number of statistically significant differences between the genders (five out of 27 items) on this bank of questions. Table 6.12 below lists all items that had a difference greater than 0.33 between the genders for Cluster 1, with statistically significant items in bold.

Motivations: School A	Clus1M	Clus1F
Fame	**2.05**	**1.29**
Intellectual challenge	**3.10**	**3.86**
Participation in community action	**2.74**	**3.43**
Opportunity to solve problems/work for social change	3.00	3.57
Opportunity to create new knowledge	**2.74**	**3.43**
Goals		
To work in a landscape arch firm	**1.95**	**2.64**
To work for a government agency	1.75	2.29
To work for an advocacy group/non-profit	1.85	2.57
To work as a real estate developer	2.20	1.43

Table 6.12: Large differences between School A Cluster 1 genders on items of *Goals and Motivations*
Bold: p<0.05

With the exception of the *Fame* item, the female responses in Table 6.12 on all *Motivation* items are greater than their male counterparts, indicating more importance. In fact, the females rate seven out of the total 13 *Motivation* items greater than 3.33; the males only rate three *Motivation* items that highly (in descending order of importance, *Opportunity to be creative, Ability to be a licensed architect, Opportunity to help people*). Four of the seven highest rated *Motivation* items by the females are included in Table 6.12; the other three items are the same as those mentioned for the males of Cluster 1.

The males and females of School A Cluster 3 responded quite similarly to each other on this bank of questions, with only one statistically significant difference ($p<0.05$) found between them for the *Motivation* item of *Independence*, with females rating it as more important than males. The only other item that produced a large difference between genders (although not significant) was on the *Goal* item of *To work in an interior design firm*, with females rating this as a more desirable job scenario. This difference between genders was not specific to Cluster 3, but rather there was a consistent pattern of all females from all three clusters rating this item as well as *To work in a landscape architecture firm* as more desirable than the males in their respective cluster.

Even though Cluster 1 had the greatest number of significant differences between the genders in one-way ANOVAs, it is Cluster 2 that has the furthest distance between genders in the MDS plot of Figure 6.5. Looking closely at their mean responses, we see

that Cluster 2 has the greatest number of differences between the genders. Out of a total of 27 questions, 17 items had differences greater than 0.33 between the males and females of Cluster 2 (two statistically significant items in bold with $p<0.05$) as shown in Table 6.13.

Motivations: School A	Clus2M	Clus2F
Fame	1.83	1.20
High income potential	2.50	1.80
Intellectual challenge	**3.17**	**3.80**
Ability to be a licensed architect	3.67	3.30
Status or prestige	2.67	2.20
Participation in community action	*2.17*	*2.60*
Opportunity to solve problems/work for social change	*2.33*	*2.80*
Opportunity to help people	*2.33*	*2.90*
Goals		
To work alone in private practice	2.17	3.00
To work in an arch/engineering practice**	**1.50**	**3.10**
To work in an interior design practice	1.83	2.70
To work in a landscape arch firm	1.67	2.60
To have an architectural position in a corporation	1.67	2.50
To work in consulting/research	2.17	2.70
To work in construction	1.50	2.20
To work in design build	2.83	3.40
To work as a real estate developer	1.67	2.20

Table 6.13: Large differences in mean responses for School A Cluster 2 on questions of *Goals & Motivations*
Bold: p<0.05, Bold: p<0.005**
***Underlined and italicized*: Social responsibility items**

There are two patterns to discuss in the differences between genders for School A Cluster 2 in Table 6.13 above. Firstly, on the questions of *Motivations*, the males have much lower mean responses to the three items relating to social responsibility, which are italicized and underlined for emphasis. Interviews will be referenced in the following section to further understand the motivations of the Cluster 2 male sample at School A. Secondly, on the *Goals* items, the School A Cluster 2 males show much less interest in a variety of job scenarios than their female counterparts. On all of the *Goals* items listed in

Table 6.12, the females have higher mean responses than the males, indicating more interest. The males exhibit a very narrow focus of career paths that interest them; they only rated two items greater than 3.00 (on a 4.00 point scale): *To work in a small firm* and *To teach architecture at the college level*. In contrast, the females rated four items greater than 3.00: the same two items as the males, as well as *To work in design build* and *To work in an architectural/engineering firm*. These differences between males and females of School A Cluster 2 support the findings of Groat & Ahrentzen (1996) in that they also found male students to be more interested in traditional career paths with females more open to alternative career options and more concerned with social issues.

In addition to the differences between genders within Cluster 2, there are also large differences when comparing males and females of Cluster 2 with the other four groups at School A. Figure 6.6 below shows Cluster 2 responses in comparison with the other groups on select items in which either Cluster 2 males, females, or both responded quite differently from the Clusters 1 and 3. The Cluster 2 males consistently responded most differently from the other clusters, supporting the findings from Figure 6.4.

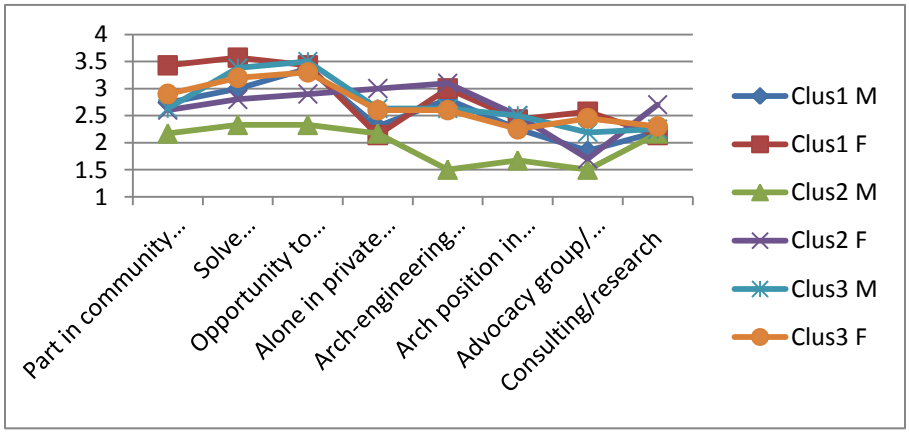


Figure 6.6: Mean responses for School A clusters on select *Goals and Motivations* items

Interviews at School A: Cluster 2 males

The sample of School A Cluster 2 males are a small group (N=6) and in the first series of interviews in 2008, unfortunately, I only interviewed two females from Cluster 2 and no males. However, during the next series of interviews in 2009, I did interview one male 2G student, Eric, who would most likely be categorized in Cluster 2 had he

completed the survey[56]. His interview offers at least one male's perspective to understand why School A Cluster 2 males tended to respond differently on social interest motivations. Also, I interviewed a number of faculty (three males, one female) at School A, who were the first in their families to receive a college degree. Even though they are not students, they come from similar backgrounds as students in Cluster 2 and their interviews may shed some light on what motivates males, in particular, from this cluster to pursue architecture.

Two interviews will be referenced in this section, one student (Eric), one faculty (Paul), both of whom are white males. The demographics for the School A Cluster 2 male sample is overwhelmingly white (N=6, 5 are white, 1 is Hispanic), with three UG students and three 2G students. Since the Cluster 2 males' lack of social interests in pursuing architecture is of primary concern, no female perspective will be discussed for this analysis.

Eric clearly felt passionately and positively about his decision to pursue architecture; he spoke highly of his professors and fellow students at School A. He recalled the steps that he took in applying to his undergraduate program to answer the question of *Why did you decide to pursue architecture.* Many students at both schools responded with some variation of "because architecture is a combination of art and science," but Eric's response was much more thorough and personal:

> I was just in a construction job at the time and I was in a place where I felt like what I was doing was not a good fit, either not intellectually challenging or just the things that I like to do, like the artistry that I enjoyed as a child was gone, so there was a lot of frustration that came with that. I began looking at older people and looking for people who I wouldn't mind being. And I found one man in particular who had these beautiful photographs of these exotic places on his wall. When I looked a little bit closer (I was doing electrical work for him), I noticed that they were watercolors and pencil sketches that he had done on location of Paris and Rome and all these places that I dream about but was never going to get to with the job I had. And so, I took a spontaneous three hour lunch break and asked him what he does and that was the first real conversation I ever had with an architect. The next day, I went and looked into an architectural program that was accessible to me in town at [my local

[56] Neither of his parents attended college; his father was an auto mechanic and his mother was a homemaker.

> university][57]…and I got in and put in my 3 ½ years in their undergraduate program. I worked hard enough and had a good enough experience there that I got a deal that I was able to come to this school, which I otherwise would have never been able to afford.

He described his decision as if he had found his calling in architecture, one that would fill the intellectual void in his life and reconnect him with the artistic endeavors he once enjoyed as a child. Later in the interview, he talked about researching a number of different career paths, such as physical therapy, art and engineering, but none felt right for him, as architecture did when he stumbled upon it. As he said, "I just never thought, 'Oh yeah, architecture,' it seems like a really obvious thing, but I was never set up in my upbringing to think about architecture. It was never on my radar."

In the quote above, he talked about looking to others as exemplars for how they lived their lives, searching for a new direction in his life. This implies a deliberate decision on his part to find a new identity for himself, which as he later explains, he found in architecture. He described his discovery of architecture as a surprise and then later learned that "it fit with my kind of physical blue collar mentality ironically enough that I was raised on a farm with, because in my mind there were power tools and building with materials, but then there was also this artistic slant." For Eric, the pursuit of architecture did not simply shape his career path, it enabled him to become a new person. As he said, "…this is something that I have ownership of, the identity that I found for myself, and it fits really well. I actually really like it."

Without other interviews from males in School A Cluster 2, we cannot know if Eric is representative of other male students in that population; nevertheless, his perspective offers insight into the experiences of a lower SES male in architectural education. It seems understandable that his motivations for pursuing architecture would not be socially/community based (which is in agreement with what other Cluster 2 males reported), but rather inwardly focused as his energies were concentrated on developing a new identity and sense of self. Interestingly enough, a similar theme of using the pursuit

[57] Eric named the university he attended, but that has been omitted to protect his identity.

of architecture as a way to create a new identity was also brought up by two male faculty at School A, Paul and Nicholas, who were the first in their families to attend college[58].

During our discussion on how important an architecture student's background is for his/her success in school, Paul spoke about his own lack of a culturally "rich background" (neither parent had a college degree, his father was a carpenter and his mother a homemaker) and his lack of awareness of what such a background would be until he was in his mid-20's. He positioned himself as one who "just got lucky" to do his graduate work in architecture at Columbia University and to work in prominent architects' offices to be immersed in a new way of thinking for him. He explained that it started shortly after he completed his undergraduate degree, when he was working in an office:

> …I was listening to two fellows who had just finished the Master's program [in architecture] at Princeton, and they were talking about things in such a way that I thought, 'Wow, what is that? Where did you get exposed to that?' and so the next year I was off to Columbia [University]. So just being around, being very, very fortunate to be in circumstances where there are interesting people. I try to model myself in some ways after those people, or at least their values.

Paul brought up a similar point as Eric did in that they both found others to emulate, to develop themselves into the people they wanted to be. Paul made it clear that as an instructor it did not matter to him what a student's background was, but rather he believed that students simply needed "curiosity and desire" to succeed in architecture school. As he said, "…you can have a rich background and not be curious. I think once you become curious about the world and its densities and saturations, then you have multiple lifetimes in front of you, in terms of architecture and what it can be." Speaking as someone who did not have a culturally "rich background" but did create a successful path for himself in architecture due to his own curiosity and desire, Paul reinforces the notion of pursuing architecture for one's own personal development. These two

[58] Thesis advisors work in pairs determined by the program chair. For the Winter 2009 term, Paul and Nicholas were advising partners and were Eric's thesis advisors. At graduation, Eric was awarded one of the highest honors, the *AIA Henry Adams Medal*, as well as a School A *Graduate Thesis Award* for his M.Arch thesis.

interviews provide insight into how architecture has offered these men, from a lower SES, an avenue to a new sense of self that still maintains ties to their beginnings.

School B

There are key differences to discuss between genders' mean responses for all three clusters at School B, but given the location of the Cluster 2 males in Figure 6.4 on the periphery, additional attention will be given to them. Cluster 3 of School B had a very large distance between gender points in Figure 6.5, although the limitations of their small sample size and the conflation of program type with gender in this cluster, do not allow for strong conclusions to be made about them. The genders of Cluster 1 at School B answered fairly similarly to the majority of *Goals and Motivations* questions, with just a few key differences to note.

Table 6.14 below lists the four items in which there was a difference greater than 0.33 between genders of Cluster 1, with one statistically significant item ($p<0.05$) in bold. All of the *Motivation* items listed below can be conceptualized as practical motivations for pursuing an education in architecture and the females have higher mean responses to all of them. The genders of Cluster 1 followed a similar pattern as those of Clusters 2 and 3 on the *Goal* item of *To work in an interior design firm*. Females of each cluster always had higher mean responses to this item than the males of their respective cluster[59].

Motivations: School B	Clus 1M	Clus 1F
High income potential	2.36	3.17
Job security	2.64	3.33
Ability to be a licensed architect	2.73	3.33
Goals		
To work in an interior design firm	**2.00**	**3.33**

Table 6.14: Differences between genders of School B Cluster 1 on items of *Goals and Motivations*
Bold: $p<0.05$

[59] Although it is not listed in Table 6.13 as the difference wasn't that large between males and females of Cluster 1, the item of *To work in a landscape architecture firm* produced similar differences between genders of all three clusters, with the females expressing more interest in this job scenario. As was discussed in the previous section, the same pattern for these two items between genders across clusters was also found at School A. Unfortunately, there was no discussion of these two particular job scenarios in the interviews at either school to reference in order to further document the males' general lack of interest in interior design and landscape architecture.

There are many differences to discuss between genders of Cluster 2 at School B, which help us to understand the large distance between the males and females of this cluster on the MDS plot of Figure 6.5. Out of a total of 27 items in this bank of questions, there were 14 that had differences greater than 0.33 between the genders for School B Cluster 2. Table 6.15 below contains all 14 of those items (statistically significant items in bold, $p<0.05$). Only three items were from the *Motivations* section, with the remaining 11 in the *Goals* section. Upon closer examination of those 11 items, it is the males who generally have lower mean responses compared to the females, demonstrating the males' lack of interest in the majority of work scenarios. Females' mean responses are higher than males' on all items in Table 6.15 except for those which are underlined and italicized.

Goals and Motivations: School B	Clus 2M	Clus 2F
Motivations		
Job security	2.67	3.43
Independence	***3.78***	**2.86**
Opportunity to solve problems/work for social change	*3.56*	3.00
Goals		
To work alone in architecture practice	*3.44*	2.71
To work in a medium-large firm	2.33	3.00
To work in an architecture/engineering firm	1.78	2.57
To work in an interior design firm	**1.56**	**2.71**
To work in a landscape architecture firm	**1.44**	**2.43**
To have an architectural position in a corporation	2.00	2.57
To work for a government agency	1.44	2.00
To work for an advocacy group/non-profit	1.67	2.29
To work in consulting/research	1.89	2.29
To teach architecture at the college level	*3.00*	2.14
To work in construction/contracting	*3.00*	2.14

Table 6.15: Differences in mean responses between School B Cluster 2 males and females of 0.33 or greater
Bold: p<0.05
***Underlined and italicized*: Items for which males had higher mean responses**

In addition to identifying differences between genders within Cluster 2, there are also differences to discuss among Cluster 2 males and the other five groups at School B.

Figure 6.7 graphically presents those items; comparing responses of the six groups, the Cluster 2 males always have the lowest mean response, indicating the least interest in these job scenarios.

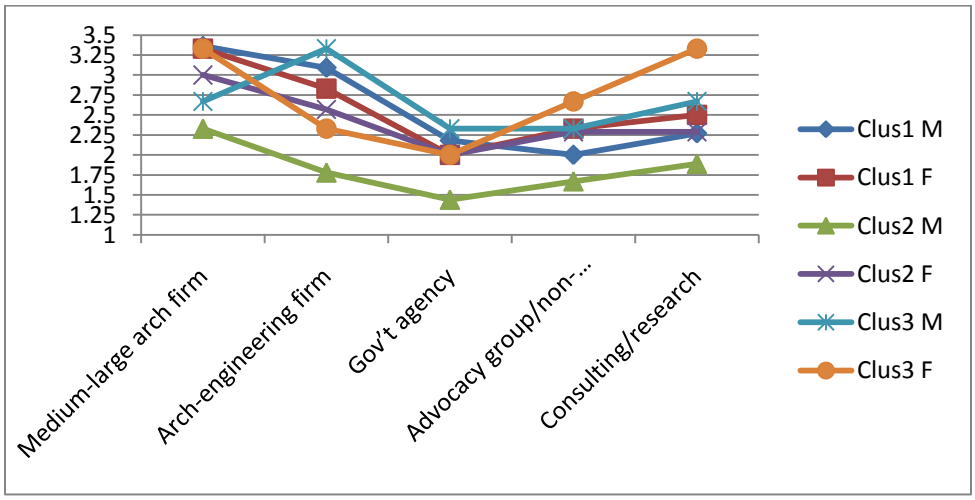


Figure 6.7: Large differences between Cluster 2 males and other students at School B on select items of *Goals*

Cluster 2 males top job scenarios are: *To work alone in arch practice* (mean response = 3.44), *To work in design build* (3.44), and *To work in a small firm* (3.22). Interviews with School B Cluster 2 males will now be discussed to understand their somewhat narrowly and traditionally defined future career path interests in architecture.

Interviews with School B Cluster 2 males

Although there were no explicit questions in the interview on career decisions, there was one student, a 2G Cluster 2 male from School B, Sam, who talked at length about why he choose architecture and his plans for pursuing it as a career. He explained his choice of architecture when he was an undergraduate at School B as follows:

> [It was] the only one [degree] I can complete and enjoy. It's just where I feel comfortable and it's the only place I can do well and get pretty decent grades…I was a literature major, then creative writing, then briefly journalism and I didn't like that at all and then I left school for a number of years…I always wanted to do Architecture, I was just scared of the coursework and the path, the length of it, the complexity. It's a lot of work as you know…I only went to college because I wanted to set the precedent, that was the only reason in the beginning. I said, 'If I go to college, then my kids will go to college.' And then, I finished my Bachelors and I thought, I kind of like this…when I came back to college [as an undergraduate after leaving school because of academic

> suspension], I said, I'm going to try architecture for one semester and if I don't like it, I'm done with college and never coming back. I fell in love with it [architecture]. I had a great first semester and it was enough to keep me going…and now I'm doing my Masters.

Similar to Eric from School A, Sam also researched and tried different majors in college, but it was only Architecture that he felt truly suited him. In talking about what his plans were for after graduation, Sam was clear about his desire to work alone:

> I'll probably do what I'm doing now [which is] just go find work and do it. I don't like being in an office, that's a problem for me, mostly because of my background. I mean I grew up straight blue-collar, Bud Light on the tailgate kind of stuff and I'm still more comfortable around people of that background…I just prefer them and in the offices, I just don't like it. I know I have to do it at some point, but I have a couple of offices that I contract with now, I just don't work there. And one of those, the principal in that office, he never worked for anyone else and he got his license, so he's showing me how he got around that.

Even though Sam makes it clear that he has no interest in working for someone else in an office setting, he most certainly wants to become a licensed architect. Through his persistence and desire to work in architecture, he has already found a way to do the work he wants to do without having to be in a setting that he finds uncomfortable. From his interview, it is evident that his priority is to become a licensed architect and to work for himself. This supports the findings from the survey of School B Cluster 2 males having the highest mean responses to the job scenario of *To work alone in private architectural practice* as well as their low mean responses to alternative career paths. Unfortunately, there are no other Cluster 2 male interviews to reference on this subject, as no one else spoke specifically about career interests as Sam did.

School B Cluster 3

In Figure 6.5, there was a very large distance between the genders of School B Cluster 3. It has previously been discussed that the very small sample size for School B Cluster 3 (three males and three females) is perhaps unduly affecting mean responses, creating large distances on the MDS plots. Nevertheless, the genders of School B Cluster 3 did answer quite differently from each other on 21 of the 27 items in this category. All 21 items are in Table 6.16 with statistically significant differences in bold ($p<0.05$).

School B	Clus3 M	Clus3 F
Motivations		
Fame	**2.33**	**1.00**
High income potential	3.00	2.00
Job security	3.33	2.67
Independence	3.67	3.00
Status or prestige	3.00	2.00
Participation in community action	4.00	3.00
Wide availability of jobs	3.67	2.67
Opportunity to solve problems/work for social change	4.00	3.00
Opportunity to create new knowledge	3.67	2.67
Goals		
To work alone in architecture practice	*3.67*	3.00
To work in a small firm	3.00	4.00
To work in a medium-large firm	2.67	3.33
To work in an architecture/engineering firm	*3.33*	2.33
To work in an interior design firm	1.67	3.33
To work in a landscape architecture firm	1.67	3.33
To have an architectural position in a corporation	2.33	3.33
To work in consulting/research	2.67	3.33
To work in construction/contracting	2.67	3.67
To work as a real estate developer	2.00	3.00

Table 6.16: Differences between genders of School B Cluster 3 on questions of *Goals & Motivations*
Bold: p<0.05
Underlined and italicized: Mean responses for males are greater than females

There is again a similar pattern to School A's and School B's Cluster 2 on the *Goals* questions with the females being more open to a variety of work scenarios than the males. There are only two items in that section in which the males have a higher mean response; those responses are underlined and italicized. On the questions of *Motivations*, the females' highest mean responses were the same as the males for *Intellectual challenge* and *Opportunity to be creative*, both tied at 4.0; all other items were rated 3.0 or less. For the *Motivation* items, the females demonstrate a clear hierarchy of the reasons they pursued architecture, whereas their male counterparts have a fairly wide

range of reasons, rating eight out of 13 *Motivation* items as 3.67 or higher. This difference could possibly be attributed to the age difference between the two groups, in that the females are what could be considered "non-traditional" graduate students and the males are all "traditional" undergraduates.

Conclusion

This chapter focused on the role of gender within clusters, comparing groups within and between schools. When responses were examined by gender within clusters on questions of *Studio Experiences, Satisfaction,* and *Problematic Experiences* significant patterns emerged for each case study site. The following bullet points highlight key findings from these three banks of questions.

- Both Schools' Cluster 1 males exhibited the most dissatisfaction, although the difference between males and females of this cluster was more pronounced at School A than at School B
- School A's Cluster 1 males dissatisfaction with having received *a well-rounded education* is perhaps linked to the lack of technical/practical skills in their curriculum
- School A's females reported more problems with a *Lack of confidence* than their male counterparts; the origins of this are uncertain but may be connected to a lack of female faculty presence and/or the level of competition in the studio
- The most frequent problems for all School B clusters are problems with the administration, specifically the Dean and Assistant Dean

One of the most interesting differences that emerged between genders among the clusters at both Schools A and B is on the *Goals and Motivations* questions. For this bank of questions, it is the Cluster 2 males that responded very differently from their fellow Clusters at each case study site. The following bullet points outline the most compelling findings from this bank of questions:

- School A Cluster 2 males were least motivated by social concerns and least interested in non-traditional career paths when compared to their fellow students

- School B Cluster 2 males were also least interested in a variety of career options, but did show great interest in one non-traditional career path (*Construction/Contracting*)
- There was substantial agreement among all students from both schools that *Opportunity to be creative* and *Intellectual challenge* were two of the most important motivators for studying architecture

This chapter highlighted differences between genders within clusters at the two case study sites. Several of these findings support the work of Groat & Ahrentzen (1996) on architectural education; connections between their work and the present research will be drawn in Chapters 9 and 10. The following chapter will present analyses with students first grouped according to program type membership (UG, 2G or 3G) and then grouped by cluster within program type to understand differences in experiences among these groups at the two case study sites.

Chapter 7

Analysis by Program Type

Introduction

The previous two chapters analyzed student responses to survey and interview questions based on their cluster membership (determined by students' levels of cultural capital) and gender within cluster. The present analysis will first examine differences in responses based on program type membership among the undergraduates (UG), 2 year Master of Architecture students (2G) and 3 ½ year Master of Architecture students (3G) both within and between the two case study sites. Responses for each program type will be further defined by cluster membership, creating a 3x3 matrix (three levels of program type by three levels of cluster membership) for a total of nine groups at each school. As will be explained further in the *Analysis* section of this chapter, once these nine groups were formed, there were some difficulties with outlier responses and small sample sizes that impacted how the final analyses were conducted.

Although the thrust of this research on socialization in architectural education is motivated by an investigation of students' levels of cultural capital, other defining characteristics of students, such as their gender, program type and race and ethnicity, also play an important role in analyzing students' experiences. The purpose of the present chapter is to understand how a student's *program type membership* and his/her cluster membership (cultural capital) shapes experiences in architectural education. This will be accomplished by examining differences among the three program types at each school on survey questions of *Studio Experiences, Satisfaction* with their education and faculty, frequency of *Problematic Experiences*, their *Goals and Motivations* in pursuing architectural education and their ratings of an *Ideal Curriculum*. Interviews with students and faculty will be integrated with the MDS and one-way ANOVAs of the survey analysis to paint a rich, comprehensive picture of the dynamics of the three program types at each case study site.

Demographics

School A

The 3x3 matrix for program type membership by cluster membership for the School A sample is shown in Table 7.1 below. There is a similar pattern of distribution for the UGs and 3Gs in that about half of each program type are found in Cluster 3 (46.3% and 53.8%, respectfully). In contrast, slightly more than half of the 2Gs (52.6%) are in Cluster 1 and almost one-third are in Cluster 2. Chi-square analyses did not produce statistically significant results ($p<0.05$) for this distribution.

School A	UG *Column %*	2G *Column%*	3G *Column%*
Cluster 1	13 *31.7%*	10 *52.6%*	4 *30.8%*
Cluster 2	9 *22.0%*	6 *31.6%*	2 *15.4%*
Cluster 3	19 *46.3%*	3 *15.8%*	7 *53.8%*
Total	41 *(100%)*	19 *(100%)*	13 *(100%)*

Table 7.1: Demographic distribution of program type and cluster membership at School A

Sample sizes are particularly low for three of the cells in Table 7.1: Cluster 1 and 2 3Gs and Cluster 3 2Gs. As will be discussed in more detail in the following *Analysis* section, Cluster 2 3Gs consistently had outlier responses when one-way ANOVAs and MDS analyses were examined and it was eventually decided to eliminate them from the final analyses. Even though the Cluster 1 3Gs and the Cluster 3 2Gs had very small sample sizes, their responses were close to overall mean responses and so those groups remained in the final analyses.

School B

Table 7.2 below is the 3x3 matrix of the student sample by program type and cluster membership at School B, with one empty cell of Cluster 1 2Gs. In contrast to the distribution at School A in which the majority of students are found in Cluster 3, the majority of School B's students are located in Clusters 1 and 2. Chi-square analyses were not conducted for School B as too many cells in the matrix had counts less than five. All

program types of Cluster 3, as well as the Cluster 1 and 2 3Gs have especially low sample sizes. Of these five groups, the Cluster 2 3Gs, the Cluster 3 2Gs, and the Cluster 3 3Gs consistently had outlier responses in either one-way ANOVAs or MDS analyses. As will be discussed further in the *Analysis* section of this chapter, these three groups' responses from School B were eventually eliminated from the final analyses.

School B	UG *Column %*	2G *Column%*	3G *Column%*
Cluster 1	14 *50.0%*	0 *0%*	3 *50.0%*
Cluster 2	11 *39.3%*	4 *80.0%*	1 *16.7%*
Cluster 3	3 *10.7%*	1 *20.0%*	2 *33.3%*
Total	28*(100%)*	5 *(100%)*	6 *(100%)*

Table 7.2: Demographic distribution of program type and cluster membership at School B

Analysis

This chapter will present analyses for the survey questions of *Studio Experiences, Satisfaction, Problematic Experiences, Goals & Motivations,* and *Ideal Curriculum*. The organization of this *Analysis* section is as follows: first, findings of one-way ANOVAs will be presented separately for each school, which only considered the effect of students' program type membership on patterns of survey response; second, the MDS and mean responses for the 3x3 matrices will be presented which considered the effects of both cluster membership and program type. Interviews will be integrated as needed to highlight key findings from the quantitative analyses. The one-way ANOVAs are discussed first to lay the foundation for identifying the broad differences that exist among the three program types for each school. The follow-up MDS analyses offer further insight into the program type differences by highlighting patterns of difference in responses by cluster membership within each program type.

Unfortunately, not all groups could be included in the final analyses. There were a number of groups from each school that presented difficulties for at least one of three reasons: (1) they had an extremely small sample size, defined as N<3, (2) they had outlier responses when means were compared in one-way ANOVAs or (3) they were outliers on

the MDS plots. If a group met two of the three problematic criteria listed, they were not included in the final analysis. There were a total of four groups that were eliminated: School A Cluster 2 3Gs, School B Cluster 2 3Gs, Cluster 3 2Gs and Cluster 3 3Gs.

School A One-way ANOVAs: Studio Experiences

Mean responses to the questions of *Studio Experiences* for the three program types at School A were overall quite similar. However, five items did have statistically significant differences when one-way ANOVAs were conducted. The table below displays the significant items ($p<0.05$) in bold as well as the two other items in which there was a difference of at least 0.33 among the program types at School A.

The first four items in the table below demonstrate a difference in perception of their program between the UGs and the other two program types, in that the 2Gs and 3Gs seem to perceive their programs similarly. This should be expected as these two program types are integrated for the majority of their educations. But, when we look at the remaining three items in Table 7.3, it is the 2Gs who differ substantially in their responses from the other two program types.

School A	UG	2G	3G
To what extent do the following statements reflect your experiences?			
Design projects relate to disadvantaged people	**1.83**	**2.15**	**2.23**
Instructors accept diverse ways of thinking	**3.02**	**3.35**	**3.64**
Instructors encourage independent thinking*	**3.32**	**3.60**	**3.93**
Design projects emphasize environmentally responsible building techniques	**2.52**	**2.00**	**2.29**
What does it take to succeed in architecture school?			
Verbal presentation skills	3.44	3.30	3.68
To what extent do you agree with the following?			
Architecture students are isolated	1.82	2.35	1.69
There is considerable unity and academic sharing	**3.13**	**2.65**	**3.31**

Table 7.3: Items with large differences on questions of *Studio Experiences*
Bold: $p<0.05$, *$p<0.01$

The final two items in Table 7.3 are from the *Dynamics Assessment Subgroup.* This subcategory of four questions was detailed at length in Chapter 6. To reiterate, these questions differ to some extent from the remaining 17 *Studio Experience* items in that

they relate specifically to the social dynamics in the program. Clearly, on these two final items, the 2Gs respond least favorably, with the greatest differences between them and the 3Gs. These survey findings are one indicator of how the 2Gs experience their education differently from the 3Gs at School A; there is ample support from interviews with the School A 2Gs to substantiate this claim. A few select School A student interviews have been chosen to illustrate the ways in which the 2Gs' experiences differ from the 3Gs.

Interviews at School A

Both sets of interviews from 2008 and 2009 with School A 2Gs corroborate the survey findings, in that the 2Gs often mentioned their disappointment in the social dynamics of their program, specifying the lack of camaraderie and connection with their fellow 3G students. The 2Gs raised three related but distinct issues regarding their interactions with 3G students, which will be discussed at length in the following sections. Firstly, a number of 2Gs felt that the 3Gs were the favored students at School A by faculty[60]. Secondly, the 2Gs expressed feeling a division between the two program types; in fact, this division was so strong that it manifested in the physical layout of the studio space, with the majority of 2Gs located in one area and the majority of 3Gs in another area, with very little mixing of the two. Thirdly, a number of the 2Gs felt generally disappointed with the social atmosphere of the graduate program.

Perceived Favoritism of the 3Gs by the 2Gs

Sarah, a 2G interviewed in 2008, spoke at length about her feeling that the 3Gs were favored over the 2Gs. Overall, her attitude was very positive throughout the interview, confidently expressing satisfaction with her education, the faculty and the high expectations she felt were placed on students at School A. However, just before I concluded the interview, she asked me, "Do you want to ask me about the difference between the 2Gs and 3Gs, because I'd be willing to talk about that." She took this

[60] An earlier version of the survey was distributed to exiting architecture students at School A as a pilot study in 2006. Although no interviews were conducted, there were open-ended questions for students to voice concerns/problems with the program. One of the findings from the 2Gs open-ended comments was that they reported more problems with "faculty favoritism"; 23% of 2Gs wrote about these problems in contrast to 4% of the 3Gs. The pilot study combined with the present study findings may suggest this to be a recurrent and long-standing problem at School A.

opportunity to vent her frustrations with what she perceived as favoritism by the faculty of the 3Gs over the 2Gs:

> Culturally there is a problem and I don't think at all that it only happens at School A. I say this because I have had several 2G friends from my undergraduate who went to [a prestigious university] who said it was terribly obvious there. The 3Gs are terribly favored over the 2Gs…What happens when the 2Gs come in, the 3Gs have already been anointed as the chosen ones. There are already superstars and favorites before we even get here and we know as soon as we get here who the players are…Their (the 3Gs) projects are taken more seriously, their interests are taken more seriously. I don't know if anybody else has talked to you about this, but I feel very confident telling you that this is a shared idea among the 2Gs…My point is that the administration or the faculty or somebody is complicit in the fact that there are certain star students picked out in the first year and a half when we're not even here[61].

Similar to Sarah, Peter, a graduating 2G in 2009, also referenced his perceived favoritism of the 3Gs over the 2Gs by the faculty and said:

> …The professors like them [the 3Gs]. The 2G kids come in and it's like, 'Oh, they think they know architecture. They're not moldable.' But they [the 3Gs] are held in high esteem. It's not a naiveness [*sic*] they have, but it's a naivety to the profession.

Division between the 2Gs and 3Gs

In discussing the division he experienced between the two program types, Peter speculated about a number of factors that may have contributed to the separation of the 2Gs and 3Gs. In addition to the issue of faculty favoritism, he also mentioned how different he believed the 2Gs are from the 3Gs. Both he and a fellow 2G student, Brittany, believed that the 3Gs seemed to be more skilled in verbally presenting their studio projects. In addition, they felt that since the 3Gs do not have prior experience in architecture, they and other 2Gs sometimes found the 3Gs' projects to be lacking in design. As Brittany described, this combination of praise from faculty for the 3Gs (for what the 2Gs perceived as weak projects), exacerbated the division between these groups.

Peter further explained that not only did a "psychological division" exist between the two program types, but a physical one did as well. After our interview, he led me

[61] At graduation the following month, Sarah was recognized with an award for outstanding academic achievement.

through the thesis studio space, pointing out one area where the 2Gs sit and another area where the 3Gs sit, emphasizing that there was little mixing of the two groups.

In other interviews with 2Gs in 2009, I had learned about how a group of 3Gs had created what most students referred to as "the box" or as some students called it, "quarantine" in their studio space. The majority of the thesis studio space is open, but there is one room that is enclosed on three sides in this space. About a dozen 3G students had moved into this space and then hung a curtain on the previously open side to become a completely private space now known as "the box." Needless to say, this action did nothing to foster communication and openness with the 2Gs, but rather quite the opposite. As Brittany, a 2G explained:

> …when the curtain went up, everyone kind of felt, well now there's this physical separation, it's not just mental anymore. It was very strange…[the people inside the box] definitely have the same sort of mindset about architecture and I have to say that since we were allowed to sit wherever we want for thesis, that other cliques have definitely formed…but [the box] is just more in your face, a blatant separation.

After learning about the box, I realized that I had interviewed two of the 3G students who sit there. I was unable to talk with either of them in person again to understand their perspective as 3Gs, but I did have email correspondence with one of them, Carrie, about the box[62]. I wrote to her asking for her assessment of the box and her experience as being one of the students inside it. Other than this correspondence, which I initiated with Carrie, there were no conversations about 2G/3G dynamics raised by the 3G students. Her feelings toward it are mixed and her reply is as follows:

> Oh my gosh. The box.
>
> Keith and I got invited to sit in the box by a few people that realized it was an option for our studio to sit there. These people kept it hush hush and tried to keep out most people. Keith and I were first sort of "honored" to get asked to sit there, because the crowd sitting there was more of the "intellectual" group and thought maybe it would be beneficial to work

[62]Carrie's interview was one of the most critical and questioning of the process of architectural education at School A. I was quite surprised to learn that she was one of the students inside the box, as she positioned herself in the interview to be somewhat of an outsider in "not playing the game" to be a favorite of the professors or administration. Her interview has great insight into the workings of the hidden curriculum at School A and will be quoted at length in the final chapter.

> around them (a group that maybe we 'border' upon but are not really 'in'), but now we really regret it. As Keith stated at dinner last night, "it all started with that damn curtain."
>
> It's funny that when an "outsider" comes to visit the box and says things like "gosh, I never see you guys anymore, how do you guys like sitting in here??" and the person who had put up the curtain says enthusiastically, "it's great!" and then Keith and I roll our eyes and shake our heads in response, "it's .. alright." (Email correspondence: 03.18.09)

2Gs Experience of Studio Social Atmosphere

The other issue regarding social dynamics raised only by the 2G students was feeling a lack of camaraderie among students in the graduate program. Tammy, a 2G, talked about her disappointment with the social atmosphere, discussing how many students choose to not work in studio. It was in stark contrast to her undergraduate experience in architecture, where "you were experiencing all these firsts together, [but now] a lot of people have these established lives and you don't have these bonding moments." Another 2G, a female student from Hong Kong, Jillan, expressed similar sentiments about people not working in studio and referenced her 2G education at School A to be "kind of like an independent study…I still don't know half the people in my studio and there are only 18 of us." Again, she compared this experience to her undergraduate experience in Hong Kong which was quite positive where "we would all be working in studio, having fun and when I got here, it was a pretty big shock."

Peter also brought up the issue of a lack of students in studio, but didn't seem as personally disappointed with the lack of social stimulation as Tammy and Jillan were. Rather than being concerned with creating friendships with his fellow students, Peter focused the discussion more on how he thinks the quality of student work suffers when students choose to work outside of studio.

The following section will examine patterns of responses among program types to the *Studio Experiences* questions at School B where the differences among program types are not nearly as pronounced as they are at School A.

School B One-way ANOVAs: Studio Experiences

On the 21 questions of *Studio Experiences,* only one statistically significant difference ($p<0.05$) was found among the program types at School B. However, there

were ten items which had differences of 0.33 or greater between at least two of the program types. The table below lists those ten items, with the significant item in bold.

	UG	2G	3G
Studio Experiences			
Design projects emphasize social relevance	2.48	3.00	2.83
Students work closely with clients	1.35	1.75	1.50
An emphasis is placed on artistic expression	3.48	3.13	3.29
Studio projects emphasize env. responsible building	**2.40**	**2.75**	**3.29**
Studio projects emphasize techniques of building	2.45	2.75	2.86
What does it take to succeed in architecture school?			
Graphic presentation skills	3.84	3.63	4.00
Innate design talent	3.07	2.81	3.14
To what extent do you agree with the following?			
Architecture students are isolated	2.19	2.25	1.57
There is considerable unity and academic sharing	2.61	2.57	3.00
Critiques are constructive and respectful	2.50	2.57	2.21

Table 7.4: Large differences among program types on questions of Studio Experiences at School B
Bold: $p<0.05$

There is not a clear pattern of differences for the items listed above, in that no one group consistently answers the same on all the questions. However, there may be a subtle pattern for the first five questions of perceptions of studio curriculum in Table 7.4 above, in that the UGs consistently answer differently from the 2Gs and/or 3Gs, indicating they experience their studio curriculum differently from the graduate students.

There is a similarity between School A and School B on the items of *Architecture students are isolated* and *There is considerable unity and academic sharing*, in that both schools' 3Gs answer most favorably and the 2Gs answer least favorably. But unlike the interviews with 2Gs at School A, the School B 2Gs showed no indication of being dissatisfied with their program's social dynamics. From my observations, the 2Gs and 3Gs at School B appeared to be comfortably mixed in studio spaces, socializing with one another, projecting a content work atmosphere. Although, there were some subtle differences to note in the directions that interviews took between the 2Gs and 3Gs at

School B, in that the 3Gs did talk more about the social support they felt from their fellow students, without any prompting from me.

Interviews at School B

Even the students who were the most critical of their program at School B and may have spoken poorly of their interactions with professors and administrators, still spoke highly of the social support they experienced from their peers. Christine, a 3G student in her mid-50's, seemed particularly dissatisfied with her education at School B for most of the interview, but on the question *To what extent has this architecture program met your expectations*, she changed her tone dramatically:

> I know I've sounded kind of bitter [in this interview], but it's been wild and wonderful. It's exceeded every bit of happiness that I thought I could have in a deep and fulfilling way. The social milieu, some students and even some instructors have been very lovely people. God, the friends that I have made here, I'll remember always for the rest of my life.

She then continued to answer the question by raising more of her disappointments with the program, but for the moment she talked about the personal relationships she had developed, she seemed grateful for at least the social experiences she had at School B.

Another female 3G, Emma, also in response to the same interview question expressed her satisfaction with the social support she experienced in her education. She had an undergraduate degree in Fine Arts and contrasted the two experiences, specifying how much more satisfying she found the social atmosphere in her graduate program to be. Even though she described the architecture program to be a "trying experience" and "deflating at times," she positively spoke of "a really supportive student atmosphere and collegialism [*sic*]."

Mark, a 3G with a background in graphic design, Mark, discussed how he appreciated the "immense diversity in backgrounds" that was specific to 3G students in his class as he believed that such diversity made student work stronger:

> ...we have a couple engineers, a planner, myself graphic design, someone from psychology, a criminologist, one guy was a music major, a couple of artists. [They all have] very diverse backgrounds which was interesting being in a group like that because we played off each other's skills and mindsets, where we learned a lot from each other.

Also, in Mark's interview, he used the pronoun "we" quite often to refer to his original class of 3G students. For example, in talking about a particular review, he said, "We all struggled" or trying to understand a difficult concept, "We all get it eventually" or talking about a student who attended orientation but never began the program, "We all wondered what happened to her." Using the pronoun "we" is a subtle, yet clear way to convey his membership in a group, to imply a high level of collegiality that he experienced among the 3G students.

MDS: Cluster within Program Type on Questions of Studio Experiences

Now that a foundation has been laid which outlined the broad patterns of dynamics among the three program types at both schools, each program type's mean responses will be further broken down by cluster membership. The MDS plot of mean responses to the 21 questions of *Studio Experiences* now with groups defined by cluster within program type membership is in Figure 7.1 below. Similar to the MDS plots with groups defined by cluster membership within gender from Chapter 6, a regional differentiation emerges for each school with School A points toward the left and School B points to the right. There are two exceptions to this pattern with School A's Cluster 1 UGs and School B's Cluster 3 UGs, which are highlighted in Figure 7.1.

There appears to be a central tendency of responses with the tight grouping of points in the center, as indicated by the circle imposed on the plot. Even though School A's Cluster 1 UGs are located in the predominant School B region of the plot, they are still a part of the central tendency responses with the other UGs from their school. The only group from School B in the circle of central tendency responses are the Cluster 2 UGs and the only group of graduate students in this region are School A's Cluster 1 2Gs. There is some differentiation by cluster in the plot, as all of the Cluster 3 points are located in the lower left portion of the region as indicated by the shaded area.

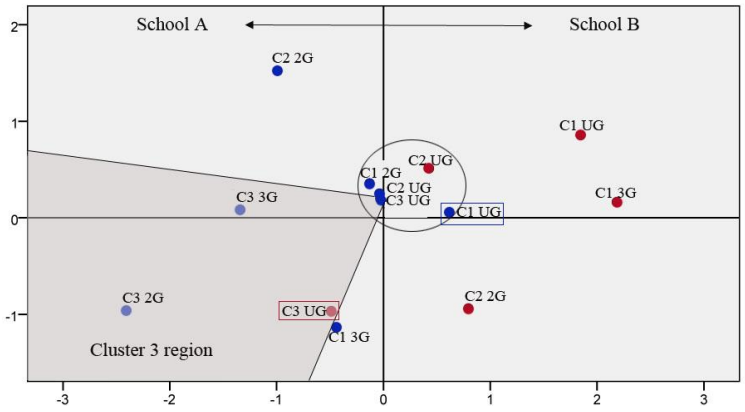


Figure 7.1: MDS plot of groups formed by Program Type and Cluster membership on *Studio Experiences*
(Blue=School A; Red=School B)
Stress = 0.11501 RSQ = 0.93714

Comparing the mean responses of the four School A central tendency groups, the Cluster 1 UGs have a slightly less favorable pattern of response than the other three groups. Table 7.5 below presents the statistically significant items from Table 7.3 in which the UGs responded most differently; responses are now presented by Cluster membership to identify if there is any differentiation by cluster within the UGs. The last two items (related to instructors) are rated least favorably by the Cluster 1 UGs.

School A	C1 UG	C2 UG	C3 UG	Overall UG Mean
To what extent do the following statements reflect your experiences?				
Design projects relate to disadvantaged people	1.77	1.67	1.89	1.83
Instructors accept diverse ways of thinking	2.69	3.11	3.16	3.02
Instructors encourage independent thinking	3.19	3.56	3.32	3.32

Table 7.5: Items that were significant in Table 7.3 with responses for UGs by Cluster membership

Overall, the School A groups responded more favorably than the School B groups. The School A points which are not in the inner circle of central tendency responses tended to rate aspects of their curricular emphases slightly differently, as did the School B points outside of the circle. However, those School B groups also tended to rate the social dynamics of their program more negatively than the central tendency groups. The one exception to this is the Cluster 3 UGs at School B, who rated dynamics favorably and are located in the School A region of the plot.

School A One-way ANOVAs: Questions of Satisfaction

There are similar patterns of differences among the three program types at each school present on questions of *Satisfaction* as there were in the previous section on *Studio Experiences*. Although there was only one statistically significant difference ($p<0.05$) after one-way ANOVAs were conducted at School A on questions of *Satisfaction*, the UGs and 2Gs are consistently less satisfied than the 3Gs. Table 7.6 below shows the eight out of the total 13 items where there is at least 0.33 difference in mean responses between two of the program types, with the one significant item in bold.

School A: Overall Satisfaction (4 point scale)	UG	2G	3G
How satisfied with your choice of arch as major	3.49	3.50	3.86
How satisfied with your choice of arch at this university	3.21	3.45	3.57
How satisfied with faculty: Relevancy to the profession	3.11	3.10	3.43
How satisfied with faculty: Overall teaching ability*	**3.09**	**3.70**	**3.50**
How satisfied with faculty: Ability to provide inspiration	3.21	3.40	3.64
Overall Satisfaction (5 point scale)			
Would you still decide to attend this university?	4.04	4.28	4.64
Has your education improved your quality of life?	4.29	3.95	4.64
How prepared are you for your long term goals?	4.24	3.90	4.29

Table 7.6: Differences in mean responses by program type to questions of *Overall Satisfaction* at School A
Bold:p<0.05, *p<0.01

The UGs and 2Gs alternate having the most negative responses in Table 7.6, but the 3Gs always have the most positive responses, except for the one item of *How satisfied with faculty: Overall teaching ability*, where they closely follow the 2Gs. There is one other exception in which the UGs are equally as satisfied as the 3Gs: *How prepared are you for your long term goals*. Even though the 3Gs do generally report higher levels of satisfaction than the UGs or 2Gs, mean responses for all three program types are quite high at School A.

School A Interviews

The interviews at School A can provide insight on why UGs rated their instructors significantly lower than the 2Gs and 3Gs on the item of *Overall teaching ability*. There were no questions specific to satisfaction with instructors in the interview but, on the

question of *To what extent has this architecture program met your expectations*, some criticisms emerged for particular classes and instructors. Also, students had the opportunity to voice criticisms in the open-ended comments section on the survey which asked students to *Please describe your program's greatest weaknesses*. A large proportion (76.5%) of all School A students surveyed answered this question. Of those who did respond, almost 40% made reference to being disappointed with a particular class in the required curriculum and over 25% mentioned being disappointed with specific faculty.

Generally, these criticisms were aimed at two of the technology classes: *Environmental Technology (ET)* and *Structures*. Both UGs and Master of Architecture students complained about being disappointed in these classes, with much more criticism leveled at the *ET* class than the *Structures* course. Criticism of the *ET* class generally focused on the instructor's ability to convey information in an engaging way and grading that was unreflective of the work students completed. Some of the complaints were vehement regarding the *ET* course, quoting one open-ended survey comment from a female UG: "Some classes were completely useless. Environmental Technology II was especially bad with poor lectures and teaching style. I learned nothing." She went on to write about other classes outside of studio that she found to be quite useful.

Another male UG wrote on his survey about the instructor of *ET*: "He should not be allowed to teach ANYTHING!" In my interview with LeeAnn, a UG, she talked about her disappointment with *ET II* and explained "the grades were assigned just kind of arbitrarily…we would hardly learn anything in class and we'd get these homeworks and exams that were impossibly hard." She said that students had approached the Program director about this instructor, but no action was taken, and the students were left feeling bitter. As she explained: "He [The instructor] has tenure and there's not really anything you can do. Everybody spent a long time filling out evaluations, but they do that every semester and nothing ever changes, so it's pointless."

School B One-Way ANOVAs: Questions of Satisfaction

On the 13 questions of *Satisfaction* from the survey, only one item had a statistically significant difference ($p<0.05$) among program types at School B, shown in

bold in Table 7.7 with additional items that had a difference of at least 0.33. On most items in the table below, the 2Gs have the lower mean responses, except on the item of *How satisfied that you have received a well-rounded education*, where they have a statistically significantly higher mean response. The 3Gs seem to have an unusually high mean response to the question of *Has your education improved your quality of life*, especially when compared to their other responses to the *Satisfaction* items.

School B: Overall Satisfaction (4 point scale)	UG	2G	3G
How satisfied with your choice of arch as a career	3.23	3.00	3.43
How satisfied that you have received a well-rounded education	**3.00**	**3.63**	**3.07**
Overall Satisfaction (5 point scale)			
Would you still decide to attend this university?	3.94	3.50	3.43
Has education improved your quality of life?	3.97	4.00	4.57
How prepared are you for your long term goals?	3.63	3.13	3.36

Table 7.7: Differences in mean responses by program type to questions of *Overall Satisfaction* at School B
Bold:p<0.05

In contrast to School A, there are no differences to note in School B students' satisfaction with the faculty, as there was never a difference greater than 0.25 among program types for any of the items. Also quite different from School A, the mean responses for all of the faculty satisfaction items at School B were much lower and had a very narrow range, with all mean responses of the three program types falling between 2.50 and 2.94, indicating a general level of satisfaction less than *Somewhat Satisfied* (3.00). The interviews shed light on the negative pattern of responses seen in the surveys for School B students' satisfaction with their faculty. Given the mean responses to questions of *Satisfaction* with faculty are low for all program types, a detailed discussion will be devoted to the interviews in the following section, referencing different points of view from all three program types. The interviews offer possible explanations for the origin of the students' discontent and they also illustrate the subtle differences among the program types regarding dissatisfaction with the faculty.

Interviews at School B

In the qualitative analysis at School B, there were two key issues regarding student disappointment with faculty. The first is a lack of guidance, which was mostly

described by the Master of Architecture students. The second issue mentioned mostly by the UGs was a few faculty members' lack of interest in teaching students. A few of the UGs also talked about the particularly bad circumstances and interactions with the faculty specific to the Spring 2007 studio, which will be referenced in this section as well.

Lack of Guidance

As was discussed in Chapter 6, when interviews were conducted at School B in Spring 2008, the architecture students had recently moved into their new facilities in January. The building had been under construction since November 2005. Aiden, a 3G student, attributed some of his disappointments with his education to the faculty and administration being more focused on getting the new building constructed rather than on current students' needs and concerns. As he explained:

> …it's definitely been a "learn-it-on-your-own" kind of experience…I did not really get a very solid foundation that first year in the basic skills…there was this emphasis on getting into the new building and maybe it shortchanged a kind of attention to the academics and maybe the mission of the program. So yeah, I think the academic portion felt a little bit more helter-skelter and less cohesive.

Another 3G student, Mary, had a slightly different, but related complaint regarding the lack of a basic computer class in the beginning of her education and that students were expected to "feel their way through the programs." Mary was an older student in her mid-50's and recognized that her age likely impacted her experience, but she still maintained that the expectations of the faculty for students' prior experience with computer modeling programs were out of line. Again, similar to Aiden, she is implying that students were expected to learn on their own without adequate guidance from faculty, perhaps more than the students thought was appropriate.

Marcia, a 2G student also in her mid-50's, who completed her undergraduate degree in Architecture at a competitively ranked public university in 2006, expressed a similar sentiment as Mary when talking about the lack of computer classes offered in the architecture program at School B. She bluntly said, "They don't teach the software, which is ridiculous because it is of course, the main thing you need to know." Marcia recalled that she has often heard School B faculty say, "You're going to learn more from

your fellow students than you're going to learn from us." She continued, "So I'm like, then why am I paying you $2000 a semester?" Marcia contrasted her undergraduate experience, where she felt there were people available to help her, to that of her 2G experience at School B: "Basically I learned Photoshop when I put my undergraduate portfolio together because I parked myself outside the T.A's office…and every five minutes, I was like, 'How do I do this?' 'How do I do that?' and I got the help I needed."

Lack of Interest

The graduate students at School B spoke in more general terms of their disappointments with faculty whereas the UGs talked more specifically about negative experiences they encountered with particular faculty who did not seem interested in teaching. A male UG, Nick, recalled a number of School B faculty with whom he was not impressed. Although he said he was pleased with a number of his studio instructors, he did talk about a particular instructor who "didn't really seem interested in the reality of architecture and encouraged students to copy construction details and not really understand them." I then asked him if he knew how many of these faculty were temporary, visiting instructors or full-time permanent faculty, to which he replied, "[School B] has a whole bunch of temporary professors, very few are full time."

Zachary, a Hispanic UG in his late 20's, specifically talked about his disappointment with three of the 300 level studio instructors he had the previous year. None of them were registered architects and he said "they never helped with real architectural issues. It was all just surface based, aesthetic, 3d, sculptural design." In fact, he and his classmates were so disappointed in these three instructors that they filed a petition with the program director that said, "the grading was really biased and weird and we felt like we were cheated the whole semester." I asked him how this situation was eventually resolved and he seemed satisfied to say that none of these instructors were invited to teach the following year[63].

[63] In addition to experiencing academic frustrations with these instructors, Zachary explained that there were also disturbing questions of theft and lying in the students' minds regarding the coordinator of the 300 level studios, Carlton, and his planning of the studio's ten day trip to Japan. Zachary described him as "a really sketchy guy…I ran into these studio professors at a bar one night [after the semester was over] and

Another UG, Rachel, explained how different all of her studio experiences had been and that she feels lucky to have had the instructors that she did. This was in stark contrast to what I learned from Zachary, and so I asked her specifically about her experiences last year in studio, to which she replied, "Oh, Spring semester you mean…it was just a f***ing disaster. I consider it a total loss and maybe even a step backwards." Like Zachary, Rachel also recognized that every semester was a different experience in studio; however, unlike Zachary, Rachel had overall more positive studio experiences. She did so by taking more control of her experiences by identifying the strongest studio instructors and making certain that she was in their studios. Even though Rachel spoke highly of the instructors she had for studio, she made it clear that a fair number of the other School B studio instructors "just aren't as engaged." Rachel recognized that she had been successful in architecture school and she attributed that success to the "amazing professors" she has had. As she said, "I've gained such a skill set that has secured me [success] whereas some of my classmates, they get a strong skill set one semester and then kind of fall off the wagon the next semester."

MDS: Cluster within Program Type for Satisfaction

Figure 7.2 below presents the MDS plot for groups defined by Cluster membership within Program type on questions of *Satisfaction*. There are a

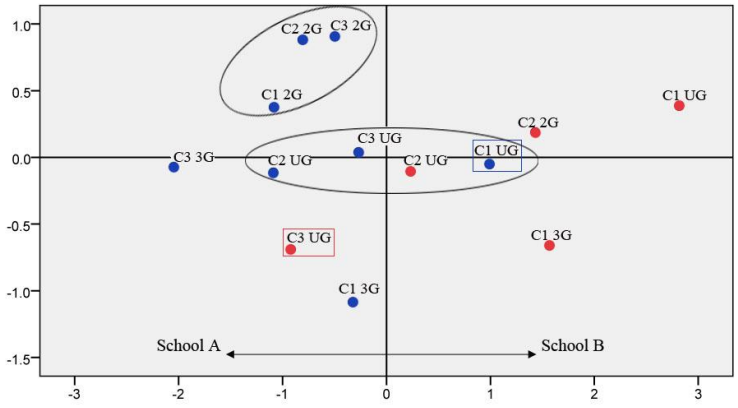


Figure 7.2: MDS plot of Program type means for questions of *Overall Satisfaction*
Stress=0.06946 RSQ=0.97815 (Blue=School A; Red=School B)

---

there is just something really weird with those guys. I think we all got gypped, and [there was] something scandalous with the whole year."

number of similarities between this plot and Figure 7.1. Although the points are somewhat more dispersed in Figure 7.2, there is again a central tendency response which includes the same groups from Figure 7.1: all of the School A UGs and School B's Cluster 2 UGs. Also, there is a fairly clear school differentiation again, with the Y-axis serving as a dividing line between School A on the left and School B on the right. The same two exceptions from Figure 7.1 to this school differentiation are again exceptions here: School B Cluster 3 UGs and School A Cluster 1 UGs.

A new pattern in Figure 7.2 is the grouping of all School A 2Gs in the upper left of the plot. These three groups answered overall favorably on these questions, which is somewhat in conflict with the 2G interviews and open-ended survey comments where they discussed feeling that the 3Gs were the favored students. However, since the satisfaction questions were not related to peer-peer interaction or social dynamics but rather were specific to feelings of overall satisfaction with their educations and faculty, perhaps the 2G students did not let this issue influence their ratings of satisfaction.

School A Cluster 3 3Gs had the highest mean responses in all categories and School B Cluster 1 UGs had the lowest mean responses, which suggests that the X-axis in Figure 7.2 can be conceptualized as a continuum of satisfaction. Given this, both schools Cluster 1 UGs appear to be the most dissatisfied groups at their schools. There was one statistically significant item for School A from Table 7.6 with the UGs having the lowest response compared to the 2Gs and 3Gs. Table 7.8 below presents responses for the UGs broken down by cluster membership; it is the Cluster 1 UGs who responded the least favorably.

School A: Overall Satisfaction (4 point scale)	C1 UG	C2 UG	C3 UG	Overall UG mean
How satisfied with faculty: Overall teaching ability	2.62	3.44	3.17	3.09

Table 7.8: Responses by Cluster membership within School A UGs

School A One-way ANOVAs: Questions of Problematic Experiences

Out of a total of 16 questions related to *Problematic Experiences* in students' educations on the survey, only one statistically significant difference ($p<0.05$) emerged among the School A program types with one-way ANOVAs. This category of questions is not as straightforward in terms of responses as the *Overall Satisfaction* category was

for School A, in which the UGs were consistently the least satisfied and the 3Gs were the most satisfied at School A. However, one pattern emerges in the MDS plot for these questions when groups are defined by Cluster within Program type: the Cluster 1 UGs generally reported the most problems at School A. This finding should be kept in context in that mean responses for all program types at School A indicated a low frequency of problems; with response choices of 1=*Not at all*, 2=*Only occasionally*, 3=*Somewhat frequently* and 4=*Quite often*, the highest mean response for any item was only 2.55 and many items had mean responses of 2.00 or less. The table below contains all items where there is a difference of at least 0.33 among program types on questions of *Problematic Experiences*; the one statistically significant difference is in bold.

School A: Problematic Experiences	UG	2G	3G
Financial problems	2.11	2.55	2.38
Lack of encouragement from instructors	1.93	1.55	1.92
Lack of support from administrative staff*	**1.83**	**1.20**	**1.15**
Lack of advising/guidance from faculty	2.19	1.70	2.08
Lack of positive contact w/dean	1.87	2.30	2.25
Lack of confidence in design/academic abilities	2.48	2.00	2.62
Little flexibility in course offerings	2.43	2.05	2.15
Limited job opportunities in arch	2.23	1.85	1.67
Feeling arch degree not worth it	2.41	2.26	1.77

Table 7.9: Differences in mean responses for questions of *Problematic Experiences* by program type at School A
Bold: p<0.05, *p<0.01

On the one statistically significant item, *Lack of support from the administrative staff,* the UGs had the highest mean response, but it was still less than 2.0, indicating that it occurred less than *Only Occasionally* for them. The most frequent problem for both the UGs and 3Gs is feeling a *Lack of confidence in design/academic abilities;* although not statistically significant, both groups' mean responses are quite higher than the 2Gs. This finding makes sense in that the UGs and 3Gs come into their respective architecture programs with the least amount of experience in architecture. The 2Gs have already completed an undergraduate degree in Architecture and may have had experience working in the discipline before returning for a graduate degree, potentially elevating confidence in their abilities.

Interviews at School A

Even though there was only one significant item after conducting one-way ANOVAs on questions of *Problematic Experiences*, there is a subtle pattern of the UGs reporting more frequent problems at School A. They have an especially high mean response to the item of *Feeling the rewards of an architecture degree are not worth the efforts of getting it*. Although the School A UG interviews were overall quite positive, they offer some indications as to why this particular item had such a high mean response. One theme that emerged in the UG interviews was the notion that pursuing a degree in architecture was very difficult and certainly not for everyone. In other words, these students compared themselves to other majors and believed that architecture required more discipline, structure, engagement and dedication than most other majors.

In her response to the question, *To what extent do you believe that a design student has innate talent or learned skills or both*, a UG LeeAnn, explained that she didn't believe innate talent had much to do with succeeding in architecture school, but rather it was one's dedication and will to succeed that were more important. I then asked her if she believed that anyone could be an architect, to which she replied:

> No, because of the time factor. I don't think a lot of people are willing to put in the time and effort and hours that we have to put in. Staying up all night is not usually a thing people are real keen on doing, so it's kind of a *lifestyle* [italics added] more than other careers. I'm sure people say this all the time, but nobody really understands; other majors don't get it. They're like, 'Why are you so busy all the time?' or 'You're doing work on a Friday night? That doesn't make any sense.' But you have to do it. I don't think a lot of people are willing to put in the time and effort that is needed to be successful.

Even though LeeAnn spoke positively about her education and her choice of major throughout the interview, she may have had a sense that she was missing out on experiences that students outside of architecture were having because she was working in studio so often. One of the faculty I interviewed at School A, Nicholas, talked about the "collective identity" in the UG program and that he believed cohesion was readily formed among students in that program, especially when compared to the 2G program, because students were seeking an identity and were willing to "glom" on to the group. But, working against that cohesion was "the pressure of these are the best years of my life" for

the UGs. Using Nicholas' insights, it is an interesting proposition to imagine that the UGs might have felt pulled in two different directions; one is toward the sense of accomplishment and community they've found in the architecture program and the other is toward the pressure that they should be having fun in their college years.

School B One-Way ANOVAs: Questions of Problematic Experiences

For the three groups at School B on questions of *Problematic Experiences*, there were no statistically significant differences found with one-way ANOVAs. For the items in which there was at least a difference of 0.33 among program type means, it is evident that the UGs almost always have the highest mean, indicating a greater frequency of problematic experiences. When the MDS plot for *Problematic Experiences* (Figure 7.3), which defines groups by Cluster membership within Program Type, is presented in a later section, it is evident that the Cluster 1 UGs at School B experience the most problems.

Interestingly, the one item that UGs at School B rate as less frequently problematic than the 2Gs and 3Gs is *Lack of confidence in design/academic abilities*. It was expected that School B would follow the same pattern as School A to this item, in which the UGs and 3Gs rated this as more problematic than the 2Gs. It is unclear why this is less of a problem for UGs at School B. The table below contains the six items in which there was a difference of 0.33 or greater among program types at School B, showing the general pattern of difference between the UGs and Master of Architecture students. There is one exception to note, on the item of *Lack of positive contact with the dean*, where the 2Gs respond more similarly to the UGs than to the 3Gs. The following section will present select interviews with the UGs to better understand who they are and why they reported problematic experiences at a greater rate than the other program types.

School B: Problematic Experiences	UG	2G	3G
Lack of support from administrative staff	2.52	1.75	1.86
Lack of positive communication with the program director	2.32	1.50	1.57
Lack of positive contact with the dean	2.87	2.63	2.14
Aggressive, competitive students	2.32	1.88	1.86
Lack of confidence in design/academic abilities	2.19	2.50	2.57
Limited job opportunities in arch	2.35	1.75	1.86

Table 7.10: Differences in mean responses to questions of *Problematic Experiences* by program type for School B

Interviews at School B

Overall, the interviews with many of the School B UGs quickly took on a negative tone. There was a strong sense of cynicism mixed with resignation in their responses, which was unique to this group of students at School B. Although many other School B students from the graduate programs had a fair number of complaints and disappointments to express in their interviews, it was only the UGs who expressed sharp bitterness and apathy toward their educations. They seemed to be simply waiting for their educations to end, which could be interpreted as "senioritis," in that perhaps it might be expected that many UGs in their final semester of college are ready to move on to the next stage of their lives. But, this was not experienced with the School A UGs in their interviews. The following section will present two sets of interviews: first, School B UGs interviews that illustrate their negative feelings toward their educations and second, School B faculty interviews that further support the interpretation of the UGs as feeling disenchanted and apathetic with their educations.

School B UG Interviews

The interview question of *What does it take to succeed in architecture school* was the trigger for most UGs to express what I interpreted as passivity in their educations. Out of ten interviews with School B UGs, seven of them made reference to the importance of pleasing their professors in order to succeed. For example, a male UG Nick, responded, "I think for a lot of professors, it helps to do what they recommend you do…it seems you don't have to have a good reason to do what they asked you to do because obviously, it's already the right answer in their mind." His response shows almost a complete lack of initiative, involvement and engagement in his own education, by simply accepting the notion that the professor has all the answers and therefore, there is no need for further inquiry. Similarly, a female UG, Sally described her experiences with studio professors using the language of "right and wrong answers":

> Throughout the entire semester working on a project, you come up with all different kinds of answers that you think are right, but someone [studio faculty] comes along and tells you that it's wrong, so you change it to something else.

There was one male non-traditional UG, Christopher (mid-30's), who differed from the majority of his classmates in this interview sample, in that he discussed taking initiative in directing his education. Over time, he discovered certain methods of working that were best for him and decided to employ them regardless of whether his professors agreed with his decision. His response to the question regarding success in architecture school is unusual compared to his fellow UG classmates, as he has identified methods that work for him which he perceived to not be received favorably by instructors, yet he proceeded with them because they were of value to him:

> …you need to read, you need to understand the material better and be able to present that in a desk crit. You need to be able to say, 'Look, I don't have a bunch of things to show you, maybe a couple, but I've done this analysis that will be added to my project.' I don't believe there's a lot of credit given to that, but I know for myself what I need to do to grow, so if my teacher doesn't like it, I might have pissed him off, but oh well, I've grown. I know what I need to do and that's their problem. That's the way I look at it. That's what keeps me sane. For awhile I used to think I'm not doing enough, I'm not making them happy, but finally I had to say 'Screw it, I'm learning from this by studying other architects and looking at how they resolved problems.'…so I don't think information that's gathered that doesn't have some kind of graphical or physical output is received kindly.[64]

Similar to the majority of the UGs interviewed, Christopher also made reference to trying to please the instructors, although he differed from his fellow students in that he took an active role in shaping his education. The fact that Christopher in particular, who was clearly a motivated, engaged student, mentioned the importance of "making them [the instructors] happy" may provide support for the idea that perhaps it is a larger atmosphere of passivity within which these students are working. Christopher has found a way to ignore the expectations to please the professors in order to advance his learning on his own terms.

School B Faculty Interviews

It is difficult to know whether the UG students I spoke with entered the program already in a passive mode or if they gradually learned to disengage from their educations

[64] Although Christopher felt that his methods of working were not received kindly by his studio professors, I had two studio faculty describe Christopher as an "excellent student."

over the course of their program. The faculty interviews from School B help interpretation on this matter as there were a few who primarily taught UGs and would likely support the former proposition. A visiting assistant professor, Kyra, had been at School B for four years teaching introductory classes to UGs and had spent the last two years as the coordinator of the UG studios. In talking about how she believed UGs "lack critical thinking skills," she also explained that sometimes her UG students don't even read the project brief for studio and will admit that to her by saying, "Oh yeah, if I had only read it, I might have known."

A tenure-track studio instructor in her first year of teaching at School B, Deirdre, also talked about the lack of initiative she saw in her 400 level UG studio students. Deirdre understood that she was still transitioning to teaching at School B, but was somewhat surprised that her students "aren't necessarily willing to go upstairs [to the library] and pull out a book to see how they can better their own project, but are instead relying solely on professors to see what the professor can give them." She did recall having similar experiences with students at her previous institution and speculated that students have become accustomed to multiple choice testing, right and wrong answers in primary education which has stunted their capacity for abstract and critical thinking. Regardless of the origins of such passivity, Deirdre was frustrated by the lack of self-reliance she saw in the UGs at School B and said, "I'm not interested in having them make my buildings. I'm interested in having them make their buildings. And that's a little bit tough for them."

Kaila, a part-time UG studio instructor who had been at School B for four years, spoke about the lack of initiative she saw in her students. Similar to Deirdre, she speculated that such behavior may be attributed to a generational problem rather than specific to the school. As she said:

> I don't know if it's an age thing with me, but I would always listen to music when designing. I grew up without a television, but they [the UGs] watch movies while they are designing, where that space for great things to happen is filled up with distractions. They have a huge resistance to going to the library to look at books…they think the Internet is God…and I think a lot of them haven't even been to a library.

When comparing what Kyra, Deirdre and Kaila described to what UG students described in their interviews, there seemed to be a lack of communication between the two groups in terms of expectations for students. The instructors want self-reliant, independent, critically thinking students and the students think it is their job to simply please the professor and produce "the right answer." This may be one source of frustration, leading to disengagement in their educations for the UGs at School B.

MDS: Cluster within Program Type on Problematic Experiences

In the MDS plot below in Figure 7.3 for questions of *Problematic Experiences*, again there is a school differentiation with the Y-axis serving to delineate the two regions, as was seen in Figures 7.1-7.2, with the majority of School A points on the left and School B points on the right. The one exception to this for School A is the Cluster 1 UG group and for School B, it is the Cluster 2 2G group, both of which are highlighted in the plot below with blue and red boxes respectfully. In addition to a school differentiation, there is also a program type differentiation, with the majority of Master of Architecture students in the upper left corner of the plot and most of the UG students in the center of the plot; both groups are outlined in ellipses for emphasis. The exceptions to this are the two points located on the periphery, far from either grouping: School B Cluster 1 UG and School A Cluster 1 3G.

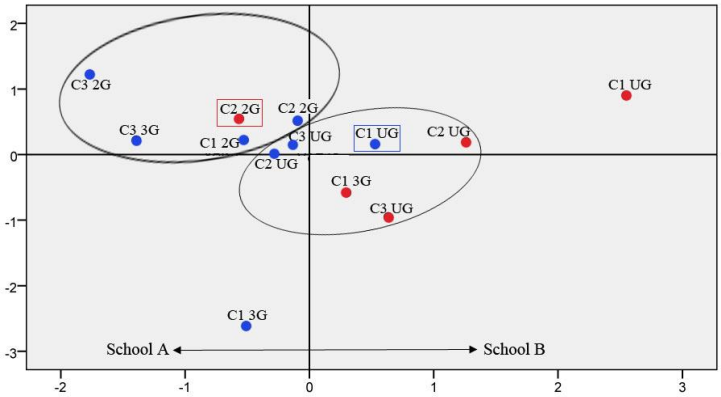


Figure 7.3: MDS plot Cluster within Program Type means on questions of *Problematic Experiences*
Stress=.12511 RSQ=.93935 (Blue=School A; Red=School B)

Similar to Figure 7.2 for questions of *Satisfaction*, there is also a continuum for frequency of problems present in Figure 7.3, with the left side representing relatively fewer problems and the right side more problems. As was true for questions of *Studio*

Experiences and *Satisfaction*, both school's Cluster 1 UGs report the most unfavorable experiences for questions of *Problematic Experiences*, with the School B Cluster 1 UGs again being the most unhappy of all groups of students. However, there were four items in particular in which most students from both schools agreed were problematic at a somewhat high frequency, rated between *Only Occasionally* (2.0) and *Somewhat Frequently* (3.0). A graphic comparison of mean responses to these four items is presented below in Figure 7.4, with School A responses on the left and School B on the right.

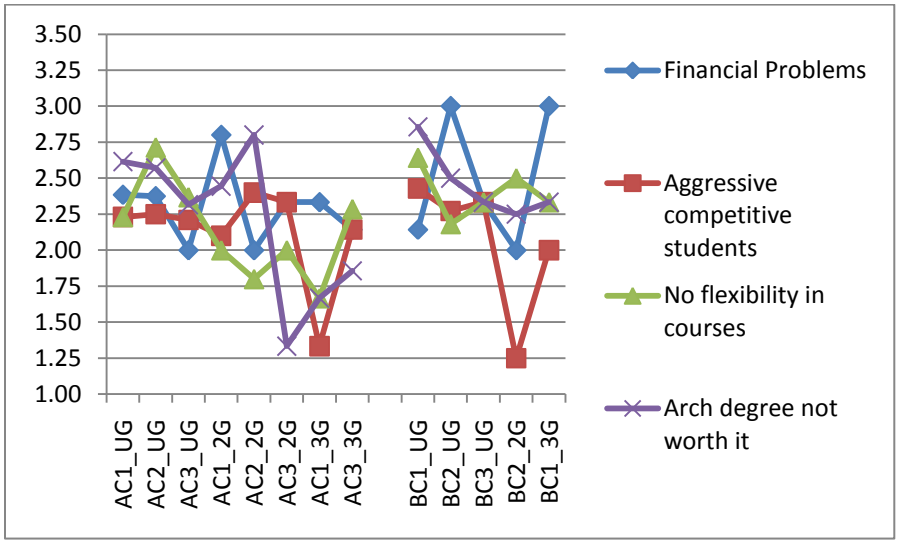


Figure 7.4: Mean responses to the four most problematic items for the majority of students at both schools

One unusual finding from the figure above is the high rating of 2.80 for *The rewards of an architecture degree are not worth the efforts of getting it* for the School A Cluster 2 2Gs. They rate this item as more frequently problematic than their 2G counterparts and it would be expected that as 2Gs, they have a complete understanding of what is entailed in earning a degree in architecture. In the following section on *Goals and Motivations*, the Cluster 2 2Gs rate *Ability to be a licensed architect* very close to *Essential* as one of their top motivators for completing this degree. Perhaps they conceptualized the Masters in Architecture as a necessary step in licensing, and not as something they would choose to pursue if it was not required.

Ideal Curriculum

One-way ANOVAs comparing mean responses to questions of *Ideal Curriculum* by Program type at School A produced five statistically significant ($p<0.05$) differences, as shown in bold in the table below. On four out of those five items, it is now the UGs at School A who respond quite differently, always having the highest mean response of the three program types. The one exception is on the item of *Drawing and graphic presentation skills*, where the 3Gs have an equally high mean response and the only the 2Gs have a lower response. For the item of *Environmentally responsible design*, it is the 3Gs who had a low mean response compared to the other program types.

School A: Ideal emphasis	UG	2G	3G
Urban design & analysis	**3.13**	**2.81**	**2.50**
Professional practice and management	**3.14**	**2.52**	**2.38**
Drawing and graphic presentation skills	**3.67**	**3.19**	**3.71**
Computer drafting and modeling skills	**3.43**	**2.90**	**3.21**
Environmentally responsible design and building	**3.72**	**3.43**	**3.00**

Table 7.11: Statistically significant differences ($p<0.05$) among program type ratings at School A of *Ideal Curriculum*

On questions of *Ideal Curriculum* for School B, there are no statistically significant differences to discuss. The table below instead presents a number of items which show a different pattern of response for the 2Gs. Their mean responses reflect their desire for less *Historic preservation* and *Environmentally responsible design* emphasis compared to their fellow students at School B. The 2Gs also differ in that they would prefer more *Professional practice* and *Socio-cultural concerns* emphasized than the UGs or 3Gs at School B.

School B: Ideal emphasis	UG	2G	3G
Historic preservation	2.77	2.38	3.29
Professional practice and management	3.39	3.63	2.80
Socio-cultural and/or psychological concerns	2.87	3.63	3.00

Table 7.12: Large differences among program type ratings at School B of *Ideal Curriculum*

School A One-way ANOVAs: Questions of Goals and Motivations

There were 27 questions on the survey measuring students' *Goals and Motivations*. Of those 27 questions, only one statistically significant difference ($p<0.05$) emerged among the program types at School A. As is seen in their mean responses in the table below, there are a few items for which there was a large difference between the 3Gs and the other two groups; usually the largest difference was between the 3Gs and UGs.

Nineteen items had differences greater than 0.33 in mean responses among the program types at School A (statistically significant item in bold, $p<0.05$) as shown in the table below. On the socially oriented *Motivation* items (*Participation in community action, Opportunity to work for social change, Opportunity to help people*), there is a clear pattern of UGs having the highest mean response and 3Gs having the lowest. Another difference is that the School A 3Gs rate the more practical motivations (*High income potential, Job security, Ability to be a licensed architect, Wide availability of jobs*) consistently lower than the other two program types. However, there was a lot of variance for these items within the 3Gs, likely explaining why the differences were not statistically significant.

School A: Motivations	UG	2G	3G
High income potential	2.36	2.05	1.93
Intellectual challenge	3.31	3.40	3.71
Job security	2.80	2.80	2.29
Ability to be a licensed architect	3.25	3.50	3.07
Participation in community action	2.98	2.60	2.50
Wide availability of jobs	2.64	2.25	2.07
Opportunity to solve problems/work for social change	3.22	3.00	2.86
Opportunity to help people	3.36	3.25	2.71
Goals			
To work in a small firm	3.18	3.25	3.57
To work in an arch/engineering practice	2.84	2.30	2.50
To work in an interior design practice	2.56	2.05	2.08
To work in a landscape arch firm	2.33	2.08	2.43
To have an architectural position in a corporation	2.49	2.25	1.93

To work for a govt agency	2.01	1.70	1.50
To work for advocacy group/non-profit	2.17	2.15	1.75
To work in consulting/research	2.23	2.60	2.21
To teach arch at the college level**	**2.60**	**3.35**	**3.43**
To work in construction	2.10	2.25	1.71
To work as a real estate developer	1.89	2.10	1.57

Table 7.13: Mean responses for program types at School A on questions of *Goals and Motivations*
Bold: p<0.05, **p<0.005

On the *Goals* questions, the 3Gs responded similarly to the 2Gs at School A, in that they both rate *To work in a small firm* and *To teach architecture at the college level* as very desirable. The UGs also find the former job scenario appealing, but have much less interest in the latter. Somewhat similar to the responses of School A Cluster 2 males from Chapter 6, the School A 3Gs also generally have a lower mean response to many job scenarios (with the exception of *To work at a small firm, To work in a landscape architecture firm* and *To teach architecture at the college level*), implying their lack of interest in a variety of jobs[65]. The interviews from School A students, especially the 3Gs, help to explain the most desired job scenarios for architecture students there.

Interviews at School A

One student's interview in particular from School A, Carrie (an Asian-American 3G) stands apart from the rest. Carrie had an especially insightful, objective and thoughtfully critical point of view on her educational experiences. Although other students expressed similar feelings as Carrie in their interviews, she was one of the few students who explicitly contextualized these feelings within the broader cultural environment of architectural education at School A. Her discussion on career choices is particularly telling about the atmosphere of School A as it highlights the pressure she experienced "to not sell out" by working at a corporate firm. Referring to a suggestion from a friend, who is studying Interior Architecture at another school, that she look at a recent project by the corporate firm Skidmore, Owings and Merrill (SOM), illustrates the disdain that the larger cultural atmosphere of School A holds for corporate architecture:

[65] Unlike the questions regarding social motivations in pursuing architecture where there was a lot of variance, on items of *Goals*, all three clusters of 3Gs answered similarly, indicating a true lack of interest in a variety of job scenarios for this program type at School A.

> …that's not anything that anyone at this school would ever say because SOM is so corporate. They [SOM] don't have any original ideas. They're just about making money…it's not like we're going to go to the library and check out an SOM book. We're looking at what's new. That's what we care about: new ideas and concepts and new ways of thinking of things…it's almost like the culture here is that you respect the people that do their own thing. Maybe they're not even getting a project and maybe they're not making any money, but they're living the dream [*chuckling*] rather than selling out.

I then asked Carrie for her personal reaction towards this popular notion at her school that making money and working for a corporate firm is equated with "selling out." She admitted feeling conflicted between what is expected of her as a School A architecture student "to eat, breathe, sleep architecture and not have an outside life" and what she values in her life. She compared her summer internship at a corporate firm to her boyfriend's (also a 3G at School A) at a small boutique firm, in which he worked far more hours for much less money than she did. This contrast in experiences prompted Carrie to question her career goals and wonder why so many of her fellow students wanted to work at a small firm.

However, given the worsening economy at the time of this interview (March 2009), Carrie explained that a lot of students were relaxing their standards of where they will work and "just want A [*her emphasis*] job, it doesn't necessarily have to be at some really artsy atelier type firm." Even though students recognize that they may have to compromise their values in a tough job market, Carrie described it as a temporary measure until they can do the kind of innovative, creative work they admire. Other students, in addition to Carrie, mentioned in their interviews how they appreciate the work their professors do in their own firms and aspire to do similarly innovative work. It is not just an implicit expectation that students at School A will work for a particular type of firm, but this sentiment has also been voiced by at least one faculty member. Carrie recalled one of her former studio professors telling students that:

> He felt really disappointed with students who got those [corporate] types of jobs, like at Gensler and work in the suburbs. He thought that was awful and he was like, 'Students at [School A] are capable of so much'…I think he had some former student who worked on the water cube for the Olympics [in China] and it was just like, 'You're capable of doing work like this and really shaping things and being the pacesetters. We have so

many students who are totally content to just work 9-5 in some suburb and they're not aware of what they're capable of.'

Carrie painted a rich picture of the expectations present at School A for future job scenarios. As she explained, it is part of the culture at School A to share in the sentiment that architecture is a way of life, not just a career path. Although students at School B also made references to the pressures to "eat, sleep and breathe architecture," none of them equated this with working in a small, boutique firm. In fact, several School B students worked for a corporate firm at the time of their interviews and did not express any misgivings or conflict about their choice of work. This is one of many differences between Schools A and B that will be revisited in Chapter 10.

School B One-way ANOVAs: Questions of Goals and Motivations

Twenty-four out of the total 27 questions on *Goals and Motivations* have differences of 0.33 or greater among program types at School B. Table 7.14 below contains those 24 items, with the four statistically significant ($p<0.05$) items in bold.

School B: Motivations	UG	2G	3G
Fame	1.81	1.50	1.14
High income potential**	**2.77**	**2.75**	**1.29**
Job security	3.03	3.00	2.29
Ability to be a licensed architect	3.00	3.25	2.57
Independence	3.19	3.75	2.86
Status or prestige*	**2.06**	**2.88**	**1.29**
Wide availability of jobs	2.81	2.25	2.43
Opportunity to solve problems/work for social change	3.16	3.63	3.00
Opportunity to create new knowledge	2.68	3.38	2.86
Opportunity to help people	3.42	3.63	3.00
Goals			
To work alone in arch practice	2.84	3.13	2.71
To work in small firm	3.23	3.00	3.57
To work in med-large firm	3.03	2.63	3.14
To work in arch/engineering firm	2.74	2.13	2.71
To work in an interior design firm	2.29	1.88	2.29

To work in a landscape arch firm	**1.97**	**1.88**	**3.00**
To have arch position in a corporation	2.39	1.88	2.57
To work for a govt agency	1.94	2.13	2.29
To work for advocacy group/non-profit	2.03	2.38	2.86
To work in consulting/research*	**2.16**	**2.29**	**3.43**
To teach arch at college level	2.35	2.88	3.14
To work in construction/contracting	2.48	3.25	2.86
To work in design/build	3.19	3.38	2.86
To work as real estate developer	2.29	2.63	2.29

Table 7.14: Differences in mean responses among program types at School B on questions of *Goals and Motivations*
Bold: p<0.05, *p<0.01, **p<0.005

The three items not listed in the table because they had high levels of agreement among the three program types were all questions of *Motivations*: *Intellectual challenge, Opportunity to be creative*, and *Participation in community action*. The School B 3Gs are least motivated by the first six items in the table above. Similar to the School A 3Gs, the School B 3Gs also seem to be somewhat less motivated by more practical concerns, such as *Job security* and *Ability to be a licensed architect*. While they do rate the social motivations (*Opportunity to work for social change* and *Opportunity to help people*) as *Somewhat important*, which is higher than School A 3Gs, they still have lower mean responses than the other two School B program types on these items[66].

On the items of *Goals*, the 3Gs find the scenario *To work in a small firm* most appealing, but closely followed by *To work in consulting/research* with a mean response of 3.43. This is a very high rating for a non-traditional career path in architecture; when responses were examined by Cluster type, all three clusters of 3Gs indicated a similar level of interest. The 2Gs also have an unusually high mean response of 3.25 to the scenario of *To work in construction/contracting*, which is their second most desired job scenario after *To work in design/build* (3.38). When responses were examined by cluster type, both the Cluster 2 and 3 2Gs had very high interest in *Construction/Contracting*,

[66] When groups were created by Cluster within program type, both Clusters 2 and 3 3Gs at School B were outliers on the social motivations, rating them much lower than the Cluster 1 3G. However, on the items of *Job Security* and *Ability to be a licensed architect*, all three clusters responded similarly, indicating a true difference between the 3Gs and the other two program types.

indicating this mean is representative of all 2Gs.[67] The UGs tended to have more traditional career interests; similar to the 2Gs, they rated *To work in design/build* quite highly, and similar to the 3Gs, they rated *To work in a small firm* highly.

MDS: Cluster within Program Type on Goals and Motivations

The MDS plot below in Figure 7.5 for questions of *Goals and Motivations* is very different from the previous three MDS plots in this chapter. In Figure 7.5, there is no school differentiation but rather there is a mixing of points representing both schools in the center, with remaining groups radiating out in a concentric circle. The majority of the groups in the center circle are UGs, with two groups of School A Master of Architecture students: Cluster 3 3Gs and Cluster 1 2Gs.

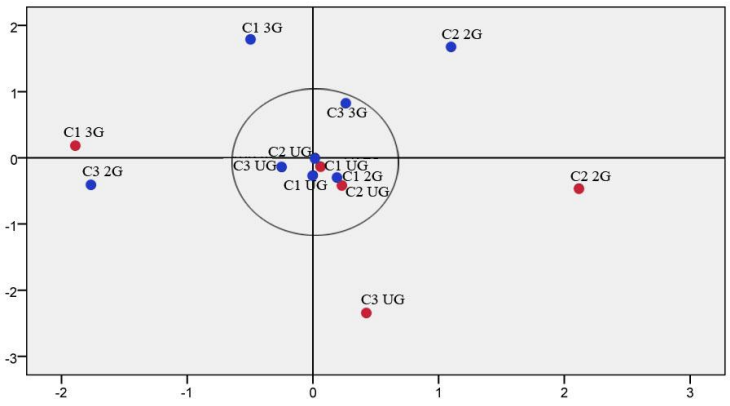


Figure 7.5: MDS plot of Program type means on questions of *Goals and Motivations*
Stress=0.10699 RSQ=0.95259 (Blue=School A; Red=School B)

In general, all groups from both schools agreed that the *Opportunity to be creative* was the most important motivator for pursuing a degree in architecture. With the exception of one group, School B Cluster 2 2Gs, all other students from both schools rated *To work in a small firm* as a very desirable work scenario. The groups on the outskirts of the plot tended to have a few items in which they responded very differently from most other students. There were four groups who differed on the most items from the majority of students in the center and interestingly, they are the same groups from both schools: Cluster 1 3Gs and Cluster 2 2Gs.

[67] There were no Cluster 1 2Gs at School B to include in this comparison.

Figure 7.6 below graphically represents the differences in responses on select *Motivation* items between a sample of the groups in the inner circle (top chart) and a sample of the groups from the outer ring (bottom chart)[68]. The top chart shows the small amounts of variation among the inner circle groups and the bottom chart illustrates the large differences among the outer ring groups.

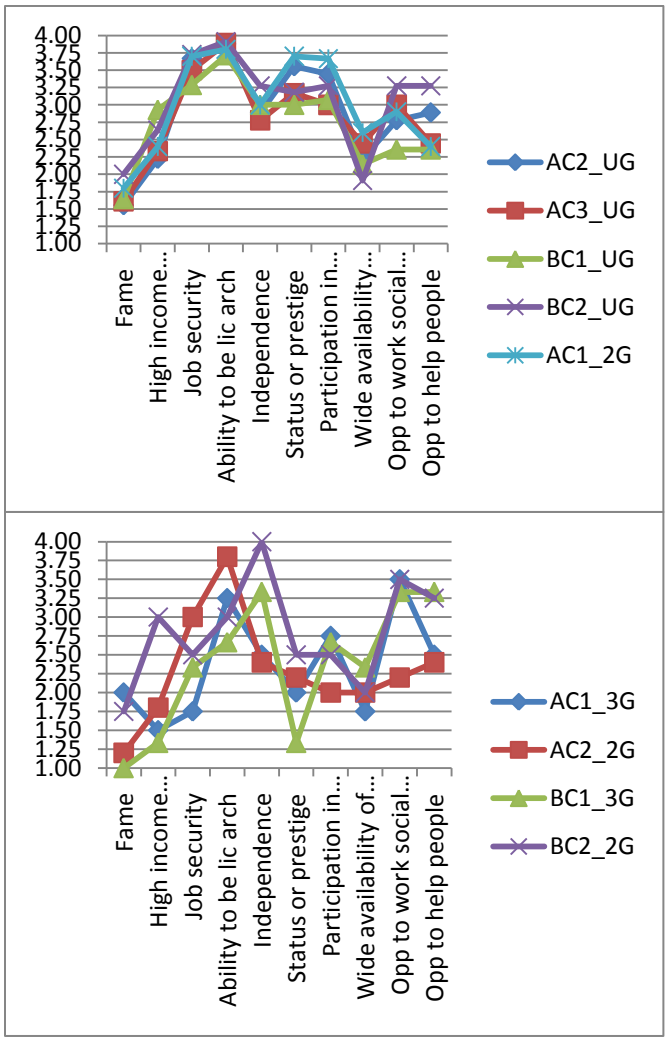


Figure 7.6: Mean responses to select *Motivation* items
Top chart includes select inner circle groups, bottom chart includes select outer ring groups

There is no striking pattern to the responses of the outer ring groups on *Goal* items as shown below in Figure 7.7, only a subtle one in that they responded with much less interest to a variety of work scenarios than the students in the center circle of Figure

[68] For the sake of visual simplicity and interpretability in the graphs, not all of the 13 groups were included. Also, the three *Motivation* items (*Opportunity to be creative, Intellectual challenge, Opportunity to create new knowledge*) which had large rates of agreement among all groups were not included.

7.5. Figure 7.7 below graphically presents the mean responses from a sample of the inner circle groups (top chart) and a sample of the radiating groups (bottom chart). Again, as was true in Figure 7.6, the outer ring groups have a lot of variation in their responses, whereas the inner circle groups have high agreement on *Goal* items.

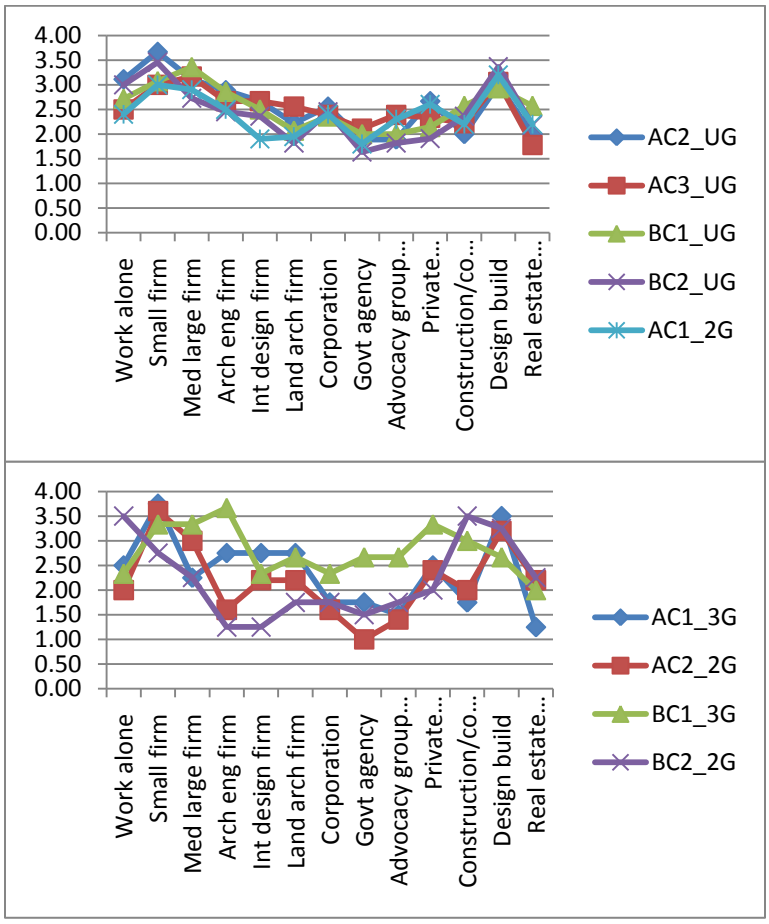


Figure 7.7: Mean responses to *Goal* items
Top chart includes select inner circle groups, bottom chart includes select outer ring groups

Conclusion

Although the patterns of responses for the program types may not have been as consistent at School B as they were at School A, there are similarities to be noted between the two schools. Highlights of the key findings from questions of *Studio Experiences*, *Satisfaction* and *Problematic Experiences* are as follows:

- Overall, all School A program type responses were more favorable than those of School B

- Both Schools' 3Gs were the most satisfied and both schools' UGs were least satisfied, although this pattern was more pronounced at School A than at School B
- School A 2Gs reported specific problems with social dynamics regarding their interactions with the 3Gs, negatively impacting their experiences

For questions of *Goals and Motivations*, although all program types agreed on the importance of *Opportunity to be Creative* and *Intellectual challenge* as motivators to pursue architecture and expressed great interest in the job scenario *To work at a small firm*, there were a number of differences that emerged among program types. Key findings on this bank of questions are as follows:

- School A UGs are the most motivated by social concerns at their school and the 3Gs are the least motivated
- School A 3Gs are the least interested in non-traditional career paths
- School B 3Gs are the least concerned with practical motivations (e.g., *High income, Wide availability of jobs*)
- Both 2Gs and 3Gs at School B expressed very high interest in specific non-traditional careers: *Construction/Contracting* for the 2Gs and *Research/Consulting* for the 3Gs

This chapter highlighted differences among students based on their program type membership and cluster membership at Schools A and B. The following chapter will group students first according to race and ethnicity and then by cluster membership within race and ethnicity to further understand student experiences at both schools.

Chapter 8

Analysis by Race and Ethnicity

Introduction

This chapter is the final of four to present analyses of the survey and interview data that document architecture students' experiences at two case study sites. The previous three chapters explored the factors of cultural capital (cluster membership), gender and program type in shaping students' experiences in architecture school. The present chapter will focus on the role of students' race and ethnicity, considering the role of cluster membership within race and ethnicity, within and between Schools A and B. Groups will first be defined by race and ethnicity, with a total of three groups at each school. Then responses for each of those three groups will be broken down by cluster membership, creating a 3 x 3 matrix for a total of nine groups to compare within each school.

Conducting these analyses presented a number of challenges that will be explained more thoroughly in the following *Demographics* section. To briefly outline, firstly, both schools have a predominantly white student population, with the remaining racial and ethnic minority students only comprising a small fraction of the total number of architecture students. Secondly, each school had different racial and ethnic minority groups (School A with mostly Asian-Americans and International students as their prominent minority groups and School B with mostly Hispanics and Native Americans), which did not allow for the same minority groups to be compared across schools. Lastly, as groups were determined considering both a student's cluster membership as well as his/her race and ethnicity, sample sizes for particular groups became very low with several being equal to or less than three. All of these issues impacted how the analyses were conducted and will be discussed in more detail in the *Analysis* section.

Initially, MDS analyses were conducted with students only grouped by race and ethnicity without consideration given to their cluster membership. These analyses were

useful to illustrate how a few select groups had different patterns of response from the majority of students at their schools; however, their sample sizes were so low (ranging from one to three) that it was difficult to draw any meaningful conclusions about such differences. It was deemed necessary in the final analyses, which are presented in this chapter, to eliminate those groups with sample sizes less than three.

In addition to facing challenges with the quantitative analysis when grouping students by Race and Ethnicity within Cluster membership, there were also difficulties in conducting qualitative analysis. Unlike the previous three chapters, this chapter will not present any qualitative data from the interviews for two reasons. Firstly, neither of the interview samples had representation from all of the racial and ethnic groups of interest in this analysis. Both schools' interview samples were predominantly white, which is representative of the larger architecture student populations, but unfortunately does not help in understanding the experiences of racial and ethnic minority students. Secondly, no one who was interviewed raised the issue of race or ethnicity as a topic of interest. Students did voluntarily raise issues of class (i.e., cluster membership) and gender in the interviews even though there were no specific questions regarding class or gender, but no one talked about race or ethnicity as factors shaping their experiences. Therefore, any differences found in survey responses among racial or ethnic groups or particular clusters within these groups will be limited in their interpretation without any qualitative data to support them.

Demographics

School A

The distribution of race and ethnicity within cluster membership for all architecture students sampled at School A is shown below in Table 8.1. A chi-square analysis of this distribution could not be conducted as there were too many cells with counts less than five; in fact, eight of the total 15 cells had counts of only one at School A. Unfortunately, both the African-American and Hispanic students were removed from the final analyses because of their small sample sizes as well as their even distribution among the three clusters. Even if all African-American and Hispanic students who

attended School A had participated in the research, it is likely that their sample sizes still would have been too small to be included in these analyses.

International students have the most uneven distribution with the majority of them located in Cluster 3. This is not a surprising finding as International students are not eligible for federal financial aid and generally must pay for their educations without any external financial assistance. Therefore, they must primarily rely on their families to financially support them throughout their educations.

School A	African-American	Hispanic	White	Asian-American	International Students
Cluster 1	1	1	16	3	3
Cluster 2	1	1	13	1	1
Cluster 3	1	1	18	2	7
Missing Cluster	0	0	4	1	2
Total students sampled (% of sample)	3 (3.9%)	3 (3.9%)	51 (66.2%)	7 (9.1%)	13 (16.9%)
Total 2008 exiting arch students (survey response rate %)	5 (60%)	7 (43%)	84 (61%)	14 (50%)	20 (65%)

Table 8.1: School A Cluster within race and ethnicity student distribution

School B

School B's distribution of race and ethnicity within cluster membership is shown below in Table 8.2. Clearly, with only one African-American student sampled and one International student sampled at School B, neither of these groups could be included in the final analyses presented in this chapter. As there are no Hispanic or Native American students in Cluster 3, within cluster comparison across race and ethnicity is impossible for Cluster 3 at School B. Also, the one Native American student in Cluster 1 was eliminated from final analyses as her responses were consistently outliers, creating MDS plots that were unduly influenced by her responses.

School B	African-American	Hispanic	White	Native American	International Students
Cluster 1	1	8	6	1	0
Cluster 2	0	3	10	3	0
Cluster 3	0	0	3	0	1
Missing Cluster	0	0	6	2	0
Total (% of sample)	1 (2.2%)	11 (24.4%)	25 (55.6%)	6 (15.5%)	1 (2.2%)
Total 2008 exiting arch students (response rate %)[69]	1 (100%)	9	17	5	1 (100%)

Table 8.2: School B Cluster within race and ethnicity distribution

Analysis

The following sections will present analyses for the following banks of survey questions: *Studio Experiences, Satisfaction, Problematic Experiences, Goals & Motivations* and *Ideal Curriculum*. The organization of this *Analysis* section is as follows: first, findings of one-way ANOVAs will be presented separately for each school, which only considered the role of race and ethnicity on patterns of survey response; second, the MDS and mean responses for the 3x3 matrices will be presented which considered the effects of both cluster membership as well as race and ethnicity. The one-way ANOVAs are discussed first to lay the foundation for identifying the broad differences that exist among the three racial and ethnic groups for each school. The follow-up MDS analyses offer further insight into both the cluster differences that were discussed in Chapter 5 and the broad racial and ethnic differences, by considering cluster membership within each racial and ethnic group.

As was mentioned previously, unfortunately not all groups could be included in the final analyses. In addition to eliminating particular groups that were already

[69] There is a discrepancy to explain between the Total students sampled and the Total 2008 exiting Hispanic, white and Native American students at School B in Table 8.2. Since the program was much smaller at School B than at School A, I invited all students who were in their final studio to participate in the research at School B. Therefore, not all of the students who were sampled in Spring 2008 graduated in that semester, but rather were on schedule to graduate within the following year.

discussed (African-Americans and Hispanics at School A; African-Americans and International students at School B), there were also a number of cluster groups within the races and ethnicities under study from each school that presented difficulties for at least one of three reasons: they had an extremely small sample size, defined as N<3, they had outlier responses when means were examined or they were outliers on the MDS plots. If a group met two of the three problematic criteria listed, they were not included in the final analysis. There were a total of three groups that were eliminated from all analyses: School A's Cluster 2 Asian-Americans and International students and School B's Cluster 1 Native Americans.

School A One-way ANOVAs: Studio Experiences

The distribution of the racial and ethnic groups of interest at School A is below in Table 8.3. The sample is overwhelmingly white, but as was explained in Table 8.1, this distribution is closely representative of the overall student population at School A's School of Architecture. One-way ANOVA is sensitive to unequal sample sizes, small sample sizes and large differences in variances among groups, in that it is more difficult for differences in means to rise to the level of significance when one of these issues is present (Hair et al, 1992). All of these issues are present in this analysis when the groups are defined by race and ethnicity and are likely impacting the results of the one-way ANOVAs.

School A	White	Asian-American	International Students	Missing	Total
	51 (71.8%)	7 (9.9%)	13 (18.3%)	0	71 (100%)

Table 8.3: School A student sample by race and ethnicity

Four statistically significant differences ($p<0.05$) were found for the 21 questions of *Studio Experiences* at School A listed in bold below in Table 8.4 in addition to three other items that had differences of 0.33 or greater among the groups. The first four items ask about students' perception of their curriculum whereas the last three items ask students to assess the more personal dynamics of their program. The Asian-Americans appear to have the strongest pattern of response for these items, in that they responded least favorably to the final two items as well as *Instructors accept diverse ways of*

thinking and *The program is supportive of racial diversity*, but respond most favorably to *There is considerable unity/academic sharing*. Perhaps their pattern of response indicates some level of tension with the faculty and administration, but no problems with their fellow students. In the following section on MDS where groups are defined by cluster within race and ethnicity, more specific differences within the racial and ethnic groups will be addressed.

School A: *Studio Experiences*	White	Asian-Am	Intl
Emphasis on decision making skills*	**3.56**	**3.43**	**2.77**
Env. responsible design is emphasized	**2.26**	**2.86**	**2.62**
The program is supportive of racial diversity	**3.37**	**2.71**	**3.17**
Instructors accept diverse ways of thinking	3.30	2.86	3.38
There is considerable unity/academic sharing	3.08	3.29	2.83
This is a conducive environment for new ideas	**3.55**	**2.86**	**3.50**
Critiques are respectful and constructive	3.25	2.57	3.08

Table 8.4: Large differences among mean responses for racial and ethnic groups of School A
Bold: p<0.05, *p<0.01

School B: One-way ANOVAs Studio Experiences

The distribution by race and ethnicity for the groups of interest at School B is below in Table 8.5. There was one African-American student and one International student also sampled at School B, but their responses were eliminated for the final analyses presented in this chapter because of their low sample size. The sample at School B is majority white, similar to that of School A, however, the racial and ethnic minority groups at School B constitute a larger proportion of the total sample at 40.9%.

School B	Hispanic	White	Nat. Amer	Missing	Total
	11 (25.0%)	25 (56.8%)	7 (15.9%)	1 (2.3%)	44 (100%)

Table 8.5: School B student sample by race and ethnicity

For one-way ANOVAs of *Studio Experiences*, there were no statistically significant differences ($p<0.05$) among the three groups of whites, Hispanics and Native Americans at School B. As was mentioned in the previous section on School A, ANOVAs are particularly sensitive to small sample sizes, unequal sample sizes and differences in variances among the groups. Figure 8.1 provides a graphic overview of

how similarly the three groups responded. There are several items for which the Native American students stand apart, but they also have large variation within that group for those items. It is difficult to interpret the Native Americans' responses as it is the smallest group with N=7 and generally had the most variation among their students. The following section which will further break down responses by cluster will provide a better understanding of this particular group of students.

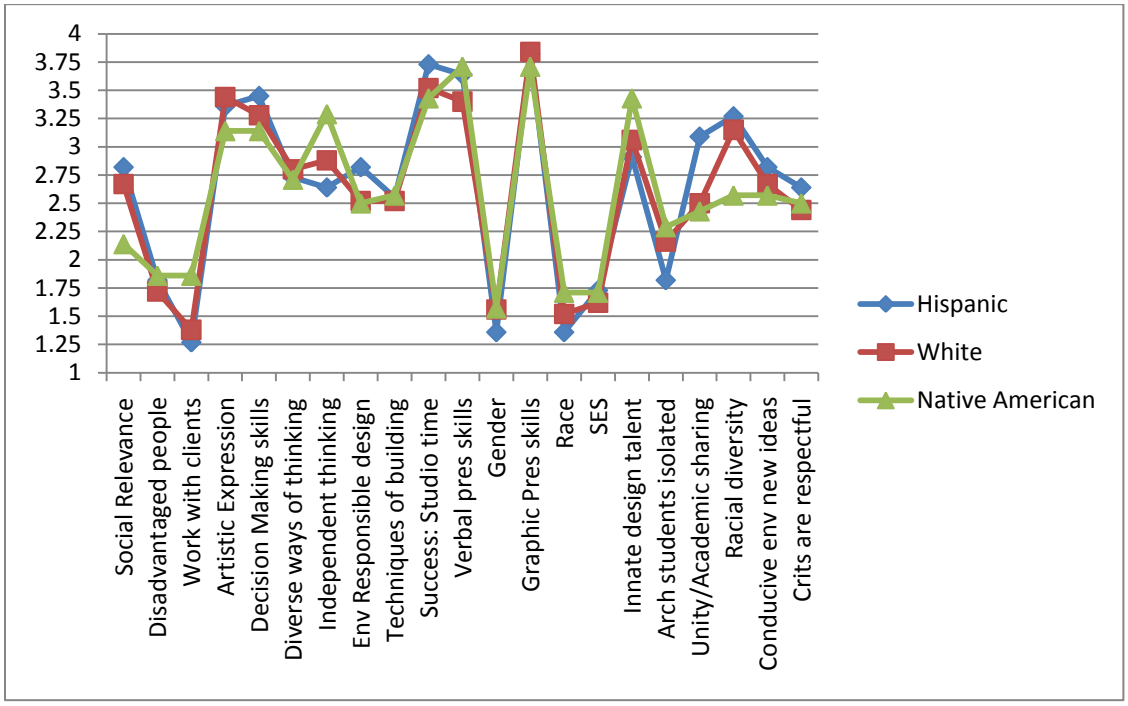


Figure 8.1: Mean responses to questions of *Studio Experiences* for School B

MDS and Mean Responses for Cluster within Race and Ethnicity: Studio Experiences

Table 8.6 below presents the 3x3 matrices for Schools A and B when groups are defined by Cluster within Race and Ethnicity. Not all nine groups at each school were able to be included in the final analyses for several reasons. Firstly, as a result of the cluster analysis, no students were categorized in the Cluster 3 Hispanics or Native Americans at School B. Secondly, because of extremely small sample sizes (N<3) and outlier responses either on ANOVAs and/or MDS analyses, two groups from School A and one group from School B were eliminated from the final analyses. Lines are drawn

through the cells in Table 8.6 for the groups which were not included in the final analyses.

School A	White	Asian-Amer	Int'l Stud		***School B***	White	Hispanic	Native Amer
Cluster 1	16	3	3		Cluster 1	6	8	1
Cluster 2	13	1	1		Cluster 2	10	3	3
Cluster 3	18	2	7		Cluster 3	5	0	0

Table 8.6: Distribution of Cluster within race and ethnicity for Schools A and B

The MDS plot of the 21 survey questions of *Studio Experience* for the 13 groups is shown below in Figure 8.2. In all of the MDS plots in this chapter, three groups (two from School A and one from School B) were eliminated because their sample size was very low and they were outlier responses either on ANOVAs or MDS. Previous MDS analyses were initially conducted with all groups included from both schools, however those plots proved to be unhelpful in understanding the dynamics among students.

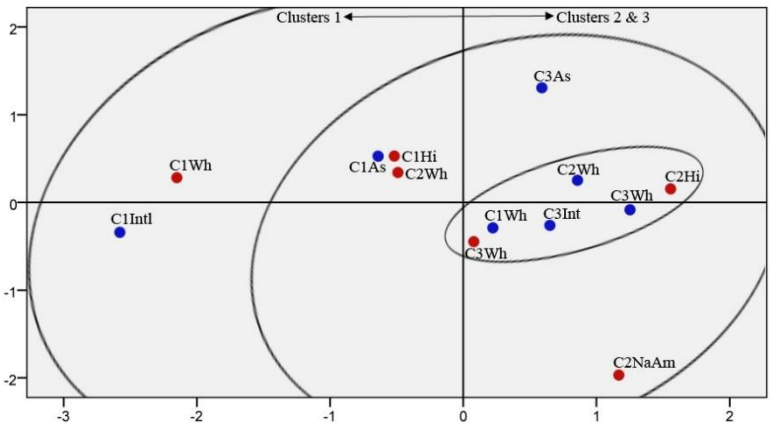


Figure 8.2: MDS plot for *Studio Experiences* groups defined by cluster within race and ethnicity
Stress=0.17632 RSQ=0.86967

There are two key points to emphasize in the plot above. Firstly, all of the Cluster 1 groups, regardless of school or racial or ethnic membership, are located to the left side of the plot, and all of the Cluster 2 and 3 points (with the exception of School B Cluster 2 whites) are to the right side of the plot. This particular layout of groups indicates that on questions of *Studio Experiences*, Clusters 2 and 3 from both schools have some similar patterns of responses, with Clusters 1 reporting a different kind of experience. Mean

responses will be compared, with select key differences highlighted, to further elaborate this finding in the following section.

Secondly, there are four groups from School A that are clustered on three out of four MDS plots: all three clusters of white students and Cluster 3 International students. Another pattern that repeats for a number of the MDS plots in this chapter is that School B's Cluster 3 whites are included in this region, as is seen in Figure 8.2 above. These groups can be conceptualized as having a kind of central tendency of responses, in that there is some pattern of response that captures the "typical" studio experience. An oval is drawn to illustrate this point in Figure 8.2. Radiating out from that inner oval are two larger curves, representing two levels of differentiation from the central tendency. The two points that are the furthest from the inner oval are both from Cluster 1, one group from each school: School A International students and School B white students. The following section will examine mean responses among the groups for each school to define the differences in patterns of response.

Means Comparison: Studio Experiences

This section will selectively present comparisons of mean responses among students at each school to questions of *Studio Experiences*. This discussion will be framed in terms of the rings that were identified in the MDS plot of Figure 8.2, first documenting typical responses of the inner ring of students then moving on to the more dispersed groups of the second ring and ending with the two furthest groups of the outer ring. As there are 13 groups of students to compare, only select findings will be highlighted that most effectively illustrate similarities and differences among these groups.

Inner Ring Groups

The groups located in the inner ring of Figure 8.2 are all three clusters of School A whites as well as Cluster 3 International students and School B Cluster 3 whites. Overall, these groups responded quite similarly to the 21 questions of *Studio Experiences*. As was outlined in Chapter 6, these 21 questions (Appendix B) can be further separated into two subgroups: 17 questions regarding perceptions of curricular emphases (e.g., *To what extent do studio projects deal with clients* or *Environmentally*

responsible design or *Techniques of building*) and four questions regarding assessment of the dynamics of the program (e.g., *To what extent are architecture students isolated* or *Are critiques constructive and respectful* or *Is there unity and academic sharing*). The four groups of students mentioned above responded quite predictably to the 17 questions of curricular emphases and overall favorably to the remaining four questions of dynamics assessment.

For instance, on questions of curricular emphases all four groups agreed that the following instances happen *Only Occassionally*: *Studio projects emphasize environmentally responsible design* and *techniques of building* and *relate to disadvantaged people*. In comparison, other groups of students located in the outer rings of Figure 8.2 had mean responses that were closer to the more extreme answers of either *Not at all* or *Somewhat frequently*. On the four questions assessing the dynamics of the program, all groups in the inner ring responded favorably to interactions with fellow students as well as with faculty, whereas the outer ring groups did not have such a strong pattern of positive response.

Outer ring groups

In the second ring of Figure 8.2, the School B Cluster 2 Hispanics and Native Americans on the right side of the plot responded similarly to the inner ring of students, in that they also rated the dynamics at their schools favorably. They responded differently from the inner ring students in how they perceived curricular emphases. These two groups of Cluster 2 students at School B tended to rate certain happenings in studio (e.g., *emphasis on environmentally responsible design* and *techniques of building*) as occurring more frequently than the other groups of students in the second ring.

Looking at the three groups on the left in the second ring, there is a slight shift to more negative responses, especially for School A Cluster 1 Asian-Americans. That group responded less favorably on *To what extent do instructors accept diverse ways of thinking* rating this item as happening much less frequently than other students at School A who are in the inner ring. Also, on the four items assessing dynamics, this group responded unfavorably to three of them, although not as unfavorably as the Cluster 1 International students at School A, as will be discussed in the following section. The

groups from School B in the second ring have a few responses that differ from the inner ring, but there is no clear pattern of negativity as there was found for the School A Cluster 1 Asian-Americans.

The outer-most ring in Figure 8.2 contains only two groups, one from each school both of which are Cluster 1. These two groups clearly have a different pattern of response from all other students, in that they perceive several aspects of their curriculum differently from other students at their school and they assess dynamics in their programs much more negatively than the other groups of students. Mean responses to items in which either of these groups responded differently than other groups at their school are reported in Tables 8.7-8.8 below.

School A	1Wh	2Wh	3Wh	1As	1Int	3Int
Emphasis on decision making	3.50	3.50	3.61	3.00	1.67	3.29
Instructors accept diverse thinking	3.31	3.25	3.39	2.67	2.33	3.57
Considerable unity/academic sharing	3.00	2.92	3.17	3.33	2.50	2.71
School is conducive env for new ideas	3.31	3.58	3.72	2.67	2.50	3.57
Crits are respectful and constructive	3.03	3.33	3.44	2.33	2.00	3.29
Success in studio: Verbal presentation skills	3.25	3.67	3.69	3.00	3.00	3.29
Innate design talent	2.93	3.33	3.19	3.00	2.50	3.07

Table 8.7: Differences in mean responses at School A on *Studio Experiences* (Groups labeled Cluster 1, 2, or 3/Race and Ethnicity)

The items in Tables 8.7-8.8 are nearly identical, both with School A Cluster 1 International students and School B Cluster 1 Whites responding most differently and/or unfavorably. Although generally the responses at School B overall are less favorable than those at School A, there is still a clear difference between how the School B Cluster 1 whites assess their studio experiences compared to their fellow students. The following section will cover questions of *Satisfaction* and again, we will see the same pattern of dissatisfaction hold true for these two groups of students.

School B	1Wh	2Wh	3Wh	1Hi	2Hi	2Nat
Emphasis on decision making	3.00	3.20	3.60	3.38	3.67	3.33
Instructors accept diverse thinking	2.50	3.00	3.20	2.63	3.00	3.00
Arch students are isolated	2.33	2.20	1.40	1.88	1.67	1.00
Considerable unity/academic sharing	2.17	2.50	3.00	2.88	3.67	3.00
School is conducive env for new ideas	2.17	3.00	2.80	2.88	2.67	3.33
Crits are respectful and constructive	1.92	3.05	2.40	2.50	3.00	2.83

Table 8.8: Differences in mean responses at School B on *Studio Experiences* (Groups labeled Cluster 1, 2, or 3/Race and Ethnicity)

School A One-way ANOVAs: Satisfaction

Out of 13 questions, only one significant difference ($p<0.05$) was found in the one-way ANOVAs for the items of *Satisfaction* at School A. There were two other items which had differences of at least 0.33 among the means for the three groups at School A; these three items are listed in Table 8.9 below with the significant item in bold. The differences among the groups for the significant item are fairly small with the least satisfied group, the International students, still responding that they are *Somewhat satisfied* (3.0). When differences are examined by Cluster within Race and Ethnicity in the following section, it is evident that it is specifically the Cluster 1 of the International students who are least satisfied. Also, it is only the Cluster 3 of the Asian-American students who have generally lower satisfaction with faculty. The MDS plot will illustrate how these two groups especially differ from the other clusters of Asian-Americans and International students at School A.

School A: Faculty Satisfaction (4 point scale)	White	Asian-Am.	Int'l
Currency in field	**3.55**	**3.14**	**3.00**
Ability to relate to students	3.18	2.86	3.38
Overall Satisfaction (5 point scale)			
Would you still decide to attend this university?	4.33	4.00	3.85

Table 8.9: Items of *Satisfaction* with large differences among racial and ethnic groups at School A Bold: $p<0.05$

School B One-way ANOVAs: Satisfaction

Two statistically significant items emerged from one-way ANOVAs at School B on questions of *Satisfaction* in Table 8.10 below. These two items also were statistically

significant at School A, but at School B, it is the white students who are least satisfied with these aspects of their faculty. Other responses to *Satisfaction* questions followed this same pattern with the Hispanics and Native American students reporting the most favorable experiences and the whites reporting the most dissatisfaction.

School B: Faculty Satisfaction (4 point scale)	White	Hispanic	Native Amer.
Currency in field	**2.56**	**2.91**	**3.29**
Ability to relate to students	**2.58**	**3.18**	**3.00**

Table 8.10: Items of *Satisfaction* with large differences in mean responses among ethnic groups at School B
Bold: p<0.05

Figure 8.3 below shows the overall pattern of discontent for the white students at School B when compared to the two other ethnic groups on *Satisfaction* questions (on a 4.0 scale). The Hispanics and the whites follow the same trend of having slightly lower ratings of satisfaction with their faculty (the final six items) when compared to their overall satisfaction with their educations (first four items). The following section will present MDS analyses and compare mean responses with groups defined by Cluster within Race and Ethnicity in which the Cluster 1 whites emerge as least satisfied.

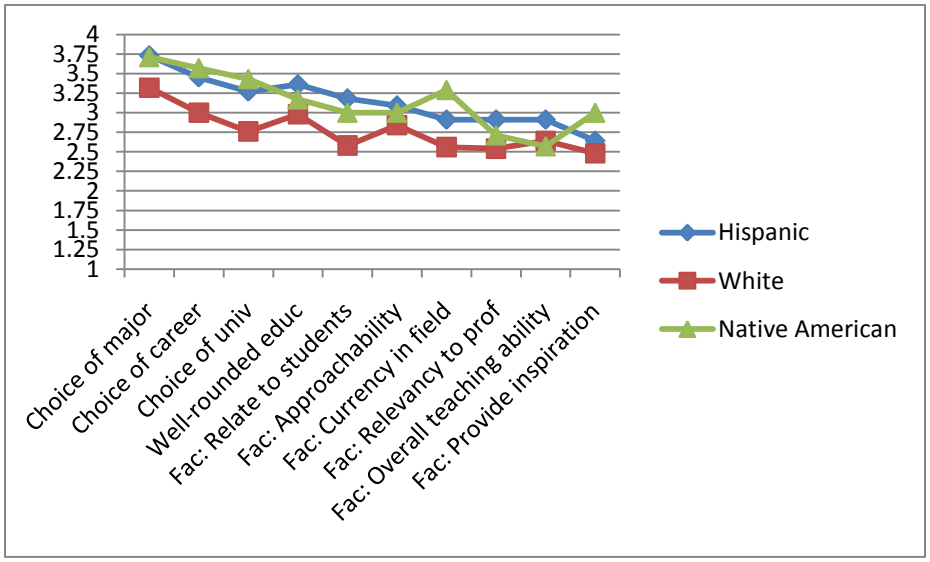


Figure 8.3: Mean responses to items of *Satisfaction* at School A

MDS for Groups Defined by Cluster within Race and Ethnicity: Satisfaction

The MDS plot for the 13 survey questions of *Satisfaction* is below in Figure 8.4. This plot is similar to Figure 8.2 in that again, there are three rings diagrammed; the inner

ring is outlined with an oval and includes all of the School A white students and Cluster 3 International students, as well as the School B Cluster 2 Native Americans. Figure 8.4 shows more differentiation between schools, whereas the MDS plot for *Studio Experiences* had more differentiation among clusters. In the *Satisfaction* MDS plot, all of the School A points are below the horizontal line, with the one exception of Cluster 3 Asian-Americans and all of the School B points are above it. Even though the Cluster 2 Native American students from School B are located within the inner ring of students from School A, they are still above the horizontal line, likely indicating that there is some similarity in ratings of satisfaction between them and their fellow students at School B.

The following section will present a comparison of mean responses to questions of *Satisfaction* to further understand the similarities and differences among groups of students within and between schools. The mean responses will help to interpret the placement of the groups along the x-axis in Figure 8.4 to see that the points located toward the right side are most satisfied and those located toward the left side are most dissatisfied.

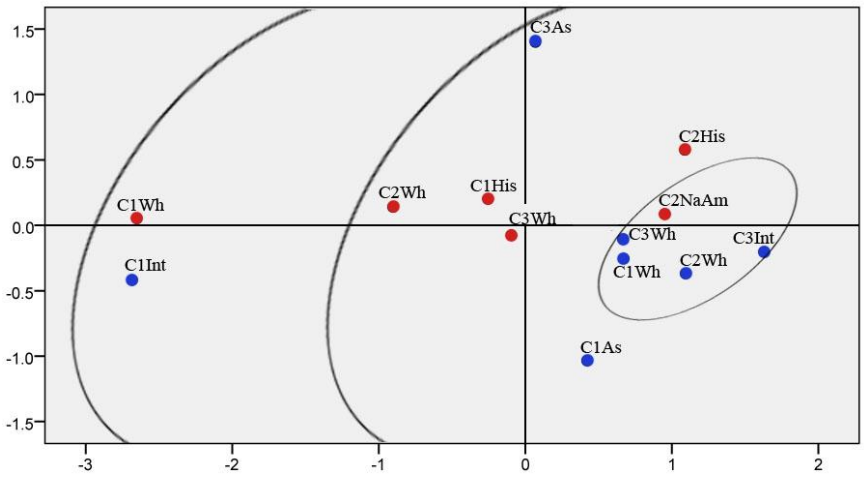


Figure 8.4: MDS plot of *Satisfaction* groups defined by Cluster within race and ethnicity
Stress= 0.03125 RSQ=0.99645

Means Comparison: Satisfaction

This section will selectively present comparisons of mean responses among students at each school to questions of *Satisfaction* with groups defined by cluster within race and ethnicity. This discussion will be organized in terms of the rings that were identified in the MDS plot of Figure 8.4 above, first outlining responses of the inner ring

of students then continuing to the more dispersed groups of the second ring and concluding with the two furthest groups of the outer ring. As there are 13 groups of students to compare, only key findings will be presented that most effectively illustrate similarities and differences among these groups.

Inner Ring Groups

The same groups of students that were in the inner ring in Figure 8.2 on questions of *Studio Experiences* from School A are also in the inner ring in Figure 8.4: all three clusters of white students as well as the Cluster 3 International students. A different group from School B now joins these four School A groups: Cluster 2 Native American students. All five of these groups have a consistent pattern of favorable responses. School A Cluster 3 International students rate their educations and faculty the highest, with only three out of 10 responses having a mean rating less than 3.50, on a four point scale (1=Very dissatisfied, 4=Very satisfied). They had especially high mean responses to the following items: *To what extent are you satisfied with your choice of architecture as a major, your choice of architecture as a career,* and *your faculty's overall teaching ability*.

The other groups in the inner ring were quite satisfied as well, but not to the same extent as the School A Cluster 3 International students group. School B's Cluster 2 Native American students differed slightly from the School A students in that they had somewhat lower ratings of satisfaction with their faculty, but still no mean responses were less than 3.0 on a 4.0 scale. The Cluster 2 Hispanics were the only other group at School B to have similarly high mean responses; they will be discussed in the following section on Outer ring groups.

Outer Ring Groups

The groups of the second ring are dominated by School B students, with only two groups from School A, the Cluster 1 and 3 Asian-American students. These groups from School A have lower ratings of satisfaction than all other School A students with the exception of the Cluster 1 International students. Even though the Cluster 1 Asian-American students have generally lower ratings, they still rate most aspects of their education as a 3.0 on a 4.0 scale. However, there is one item that they rated very low

with a mean response of 2.33: *To what extent are you satisfied that you have received a well-rounded liberal arts education*. The Cluster 3 Asian-Americans have high ratings of satisfaction with their overall education, but their responses to items of faculty satisfaction are much lower than the Cluster 1 Asian-Americans. The interpretation of these findings are limited in that the sample size of these two groups at School A are very small; the Cluster 1 Asian-American group has only three students and the Cluster 3 group has only two students.

The School B Cluster 2 Hispanic students are also located in the second ring, but their responses are actually more similar to the Cluster 2 Native American students in the inner ring, than they are to the remaining three groups of School B students in the second ring. The Cluster 2 Hispanic students are by far the most satisfied of all five groups of students in this ring. They have very high mean responses to all questions of their education, in fact they are even higher than those of the Cluster 2 Native American students. The difference between these two groups of students is in their faculty satisfaction ratings, with the Cluster 2 Hispanics having lower mean responses, although still no responses were less than 3.0 on a 4.0 scale. This difference in faculty satisfaction might account for their placement in Figure 8.4 as somewhat distant from all other groups of students.

The remaining groups of School B students in the second ring, which are the Cluster 1 Hispanics and Cluster 2 and 3 white students, had generally favorable ratings of their educations, but much lower ratings of faculty satisfaction. It is the Cluster 2 white students who have the lowest responses to faculty satisfaction, with all aspects of their faculty rated less than 3.0, *Somewhat satisfied*. Noting that the Cluster 2 white students are located to the left side of the plot and the inner ring of students are located to the right side of the plot, provides support for an interpretation of the x-axis as a continuum of satisfaction. Discussion of the final ring of students will also confirm this interpretation.

The outermost ring of students contains two groups, both of which are from Cluster 1: School A's International students and School B's white students. These are the same two groups that were in the outermost ring of Figure 8.2. They are clearly the two most dissatisfied groups of students. Mean responses of items with large differences between Cluster 1 International students and other students at School A are in Table 8.11,

and large differences between Cluster 1 white students and other students at School B are in Table 8.12.

School A: Satisfaction, Scale 1-4	1Wh	2Wh	3Wh	1As	1Int	3Int
Your choice of arch as career	3.38	3.25	3.47	3.33	2.00	3.71
Your choice of arch at this university	3.38	3.50	3.29	3.33	2.00	3.57
You have rec'd well-rounded lib arts educ	3.17	3.45	3.44	2.33	2.67	3.29
Satisfaction, Scale 1-5						
Still decide to attend this university	4.38	4.25	4.29	4.00	2.33	4.71
Has education improved quality of life	4.31	4.5	4.24	4.00	3.33	4.71
How prepared for long term goals	4.31	4.08	4.12	4.00	3.33	4.71
Faculty satisfaction, Scale 1-4						
Currency in field	3.50	3.67	3.53	3.33	2.33	3.43
Relevancy to profession	3.00	3.33	3.29	3.33	2.33	3.29
Overall teaching ability	3.38	3.67	3.18	3.33	2.00	3.86
Ability to relate to students	3.00	3.42	3.12	3.33	2.33	3.71
Ability to provide inspiration	3.31	3.58	3.47	3.67	2.33	3.57
Approachability	3.50	3.67	3.18	3.67	2.33	3.71

Table 8.11: Large differences in mean responses on questions of Satisfaction at School A

Although both Cluster 1 International students at School A and Cluster 1 whites at School B both have high levels of dissatisfaction on the majority of satisfaction measures, it is the School A Cluster 1 International students who respond the most differently from other students at their school. Figure 8.4 supports this notion as well with the Cluster 1 International students greatly separated from the rest of the School A students, whereas the School B students are more gradually spread across the horizontal continuum of satisfaction. All other groups of students at School A are overall satisfied, compared to School B where there is a higher level of dissatisfaction common to all students except the Cluster 2 Native Americans and Hispanics.

School B: *Satisfaction (Scale 1-4)*	1Wh	2Wh	3Wh	1Hi	2Hi	2Nat
Your choice of arch as major	2.83	3.80	3.40	3.63	4.00	3.67
Your choice of arch at this university	2.17	2.80	3.40	3.13	3.67	3.67
You have rec'd well-rounded lib arts educ	2.50	2.90	3.10	3.25	3.67	3.50
Satisfaction (Scale 1-5)						
Still decide to attend this university	3.17	3.50	4.00	3.88	4.67	4.33
Has education improved quality of life	3.17	3.90	4.40	4.13	5.00	4.67
How prepared for long term goals	2.58	3.40	3.60	3.81	4.00	4.33
Faculty Satisfaction (Scale 1-4)						
Currency in field	2.17	2.50	3.20	2.75	3.33	3.33
Relevancy to profession	2.17	2.60	2.90	2.75	3.33	3.33
Overall teaching ability	2.00	2.90	2.80	2.88	3.00	3.00
Ability to relate to students	2.00	2.80	2.90	3.13	3.33	3.00
Ability to provide inspiration	1.83	2.60	3.00	2.50	3.00	3.33

Table 8.12: Large differences in mean responses on questions of Satisfaction at School B

School A One-way ANOVAs: Problematic Experiences

The one-way ANOVAs on items of *Problematic Experiences* did not produce any statistically significant differences ($p<0.05$) among the three groups at School A. There are three items in which there were large differences among mean responses of these groups shown in Table 8.13 below. The striking difference in the responses below is how consistently low the Asian-Americans' mean responses are, indicating the least frequency of problems. Overall, School A students reported a low frequency of problematic experiences; the following section will compare responses based on groups defined by Cluster within Race and Ethnicity where differences do emerge among groups.

School A: Problematic Experiences	White	Asian-Am.	Int'l stud.	Overall mean
Lack of peer support	1.70	1.29	2.08	1.73
Lack of positive contact w/dean	2.08	1.43	2.00	2.00
Aggressive, competitive students	2.18	1.43	2.25	2.12

Table 8.13: Large differences between Asian-American students and other School A students on *Problematic Experiences*

School B One-way ANOVAs: Problematic Experiences

At School B, the one-way ANOVAs produced two statistically significant ($p<0.05$) differences among the three groups with the Native American students responding most differently. The two items were: *Lack of positive interaction with the dean* and *Discrimination toward minorities*. They responded most favorably to the former item and least favorably to the latter. Figure 8.5 below graphically presents mean responses on all 16 items of *Problematic Experiences* of the three ethnic groups at School B. For seven of the items in the figure below, the Native Americans reported less frequent problems than the whites or Hispanics, but on two items, they reported more frequent problems. In the following section which will present responses based on Cluster within Race and Ethnicity, this pattern holds true for the Native American students in that they generally report more positive experiences in their educations when compared to the other ethnic groups, but they also have a few major areas of difficulty.

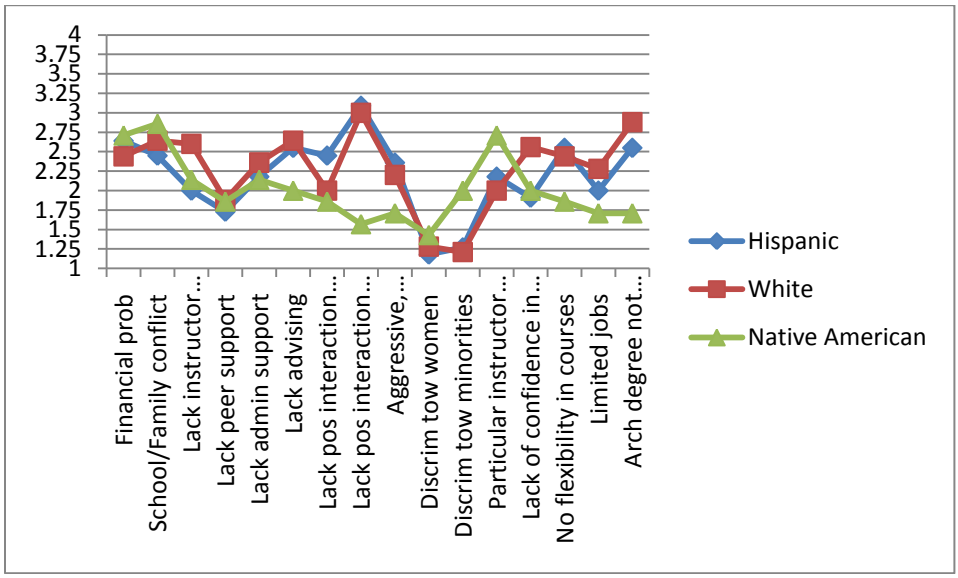


Figure 8.5: Mean responses to *Problematic Experiences* at School B

MDS: Problematic Experiences

Figure 8.6 below presents the MDS plot for mean responses to the 16 survey questions of *Problematic Experiences*. The same dynamic that was discovered in the previous two MDS plots is also present in Figure 8.6 with all of the white students from School A in close proximity to the Cluster 3 International students from School A. In addition, there is one point representing School B in this tight grouping: Cluster 3 white

students. Generally, most of the School B students are located on the left side of the plot and the majority of School A groups are located on the right side of the plot, which is indicative of a school differentiation. However, there are groups that are separated from the majority response at their respective school; Cluster 1 International and Clusters 1 and 3 Asian-American students at School A and School B's Cluster 3 whites and Cluster 2 Native American students. Mean responses will be compared among all student groups with key differences highlighted in the following section.

Figure 8.6 has been diagrammed similarly to Figures 8.2 and 8.4 in that a series of concentric rings have been identified. Again, the inner ring is representative of overall favorable experiences, with the next ring representing mostly good experiences, but with a few select problems, and the outermost ring representing the most frequent problematic experiences. Four out of six School B points are located in the outermost ring with one group from School A, the Cluster 1 International students. As we will see in the comparison of mean responses, a higher frequency of problematic experiences is common to the majority of students at School B.

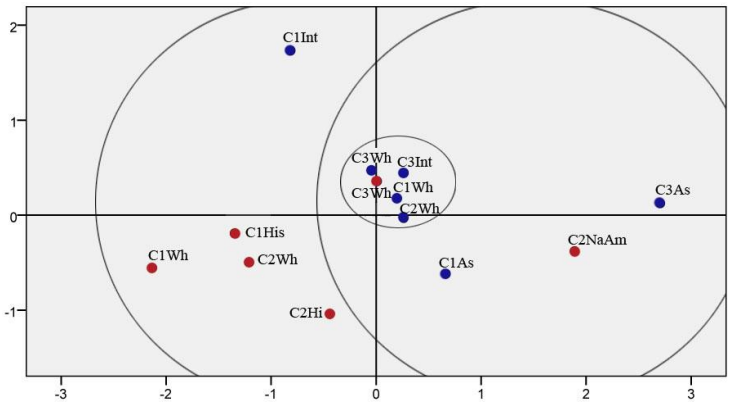


Figure 8.6: MDS plot of *Problematic Experiences* groups defined by Cluster within race and ethnicity
Stress= 0.07722 RSQ=0.97486

Means Comparison: Problematic Experiences

This section will compare mean responses on questions of *Problematic Experiences*. For the sake of clarity in discussing these findings, an emphasis will be placed primarily on those groups who responded very differently from their fellow students which are the School A Cluster 1 International students and School B Cluster 2 Native American students. The organization of mean responses presented in this section

will correspond to the diagram of Figure 8.6, with a discussion first of inner ring and then outer ring groups.

Inner Ring Groups

The same students from School A who were in the inner rings of the previous two MDS plots are again in the inner ring of Figure 8.6: all three clusters of white students and the Cluster 3 International students. There is one group from School B located in the inner ring, Cluster 3 white students, who were also in the inner ring of Figure 8.2 for questions of *Studio Experiences*. These five groups of students responded quite favorably to questions of *Problematic Experiences*, with most of their mean responses either equal to or less than 2.0, indicating that they encountered problematic experiences at a frequency between *Not at All* and *Only Occasionally*. There were two items for which all five of the inner ring groups rated with a frequency greater than 2.0 but less than 3.0 (between *Only Occasionally* and *Somewhat Frequently*): *Lack of confidence in my academic/design abilities* and *The rewards of an architecture degree are not worth the effort of getting it*. This could be expected as all of the student groups who reported overall favorable experiences in the previous analyses (by cluster, gender and program type) had higher mean responses on these two items as well.

Second Ring Groups

There are three groups in the second ring of Figure 8.6: School A Cluster 1 and 3 Asian-Americans and School B Cluster 2 Native Americans. These groups responded somewhat similarly to the inner ring groups, in that most of their responses were favorable. In fact, most of their mean responses were even lower than those of the inner ring groups, indicating even less frequent problems than the inner ring groups. However, on just a few items, these two groups had much higher mean responses than the inner ring groups.

For example, almost all of the School B Cluster 2 Native Americans' mean responses were less than 2.0 (*Only Occasionally*) with the exception of two items, which they rated quite frequent at 2.67 on a 4.0 scale: *Financial problems* and *Conflict between school and family*. Other than those two problems, this group's responses are very favorable. School A Cluster 1 Asian-Americans follow a similar pattern, although not

quite as extreme, in that they have more items rated as 2.0 or more than the School B Cluster 2 Native Americans, indicating they did experience some problems in their educations. Still, their responses are favorable with only two items rated highly at 2.67 on a 4.0 scale: *Financial problems* and *Lack of confidence in my academic/design abilities*. All of School A Cluster 3 Asian-Americans' responses are below 2.0 except for one item, *Limited jobs*, rated at 2.50.

The location of these three groups in Figure 8.6 is toward the right side of the plot, in contrast with the location of the outermost ring points toward the far left side of the plot. As we will see in the following section of mean responses, the outermost ring groups experienced the most frequent problems in their educations. It is possible that the horizontal axis in Figure 8.6 is one of frequency of problems with the right side associated with the least problems and the left side associated with the most problems and the center inner ring representative of a balance between the two extremes.

Outermost Ring Groups

Out of the five groups in the outermost ring, only one is from School A: Cluster 1 International students. The remaining four groups of students, Clusters 1 and 2 whites and Hispanics are from School B. These five groups reported the most frequent problems in their educations. As there is only one group from School A compared to four groups from School B in this ring, it is reasonable to conclude that problematic experiences are a more frequent occurrence for a larger number of students at School B. The Cluster 1 white students from School B have the most frequent problems but the remaining School B students in the outermost ring report substantial problems as well.

Table 8.14 below presents the items in which the Cluster 1 International students at School A responded most differently from their fellow students. For all items in Table 8.14, the Cluster 1 International students have the highest mean response, indicating the most frequent problems. However, there are two items listed below that all students rate with a frequency greater than 2.0 (*Only Occasionally*): *Lack of confidence in my design/academic abilities* and *Feeling the rewards of an architecture degree are not worth the effort of getting it*.

School A	1Wh	2Wh	3Wh	1As	1Int	3Int
Lack of peer support	1.75	1.67	1.78	1.00	2.50	2.00
Lack of support from admin staff	1.13	1.33	1.78	1.67	2.50	1.71
Lack of advising/guidance from faculty	2.00	1.83	2.11	1.67	3.00	1.86
Aggressive/competitive students	2.06	2.33	2.28	1.33	2.50	2.43
Discrimination toward minorities	1.13	1.17	1.56	1.00	2.00	1.43
Lack of confidence in design/academic abilities	2.31	2.33	2.67	2.67	3.00	2.14
Little flexibility in course offerings	1.81	2.09	2.44	2.00	3.25	2.29
Feeling arch degree not worth it	2.40	2.45	2.28	2.33	2.50	2.00

Table 8.14: Most unfavorable ratings of *Problematic Experiences* for Cluster 1 International students

Clearly, the School A Cluster 1 International students have a different and less favorable pattern of response from all other students at School A, which corroborates the interpretation of the MDS plot of Figure 8.6. At School B, it is the Cluster 1 white students who usually responded most unfavorably, but their pattern of response is not that different from most other students at School B. In other words, most students at School B reported a high frequency of problematic experiences and so the negative responses of the Cluster 1 white students are not an anomaly at School B in the same way that the Cluster 1 International students' responses were at School A. The items selected for Table 8.15 below are those which were the most problematic for the outermost ring groups of School B students.

School B	1Wh	2Wh	3Wh	1Hi	2Hi	2Nat
Financial problems	2.17	2.70	1.60	2.63	2.67	2.67
Conflict between school and family	2.33	2.80	2.60	2.38	2.67	2.67
Lack of encouragement from instructors	2.67	2.50	2.60	2.13	1.67	1.33
Lack of support from admin staff	3.00	2.50	1.40	2.13	2.33	1.33
Lack of advising/guidance from faculty	3.17	2.40	2.20	2.75	2.00	1.00
Lack of positive comm. w/program director	2.50	2.00	1.60	2.63	2.00	1.00
Lack of positive contact w/dean	3.50	2.90	2.00	3.13	3.00	1.00
Lack of confidence in design/academic	2.67	2.40	2.60	2.13	1.33	1.67

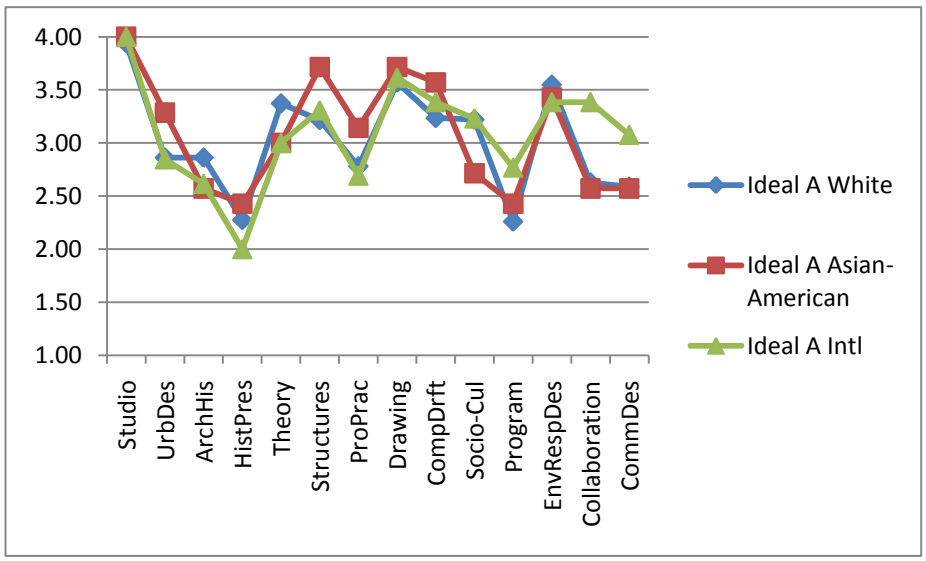
abilities						
Little flexibility in course offerings	2.33	2.60	2.00	2.88	1.67	2.00
Feeling arch degree not worth it	3.17	2.89	2.40	2.63	2.33	1.67

Table 8.15: Most unfavorable ratings of Problematic Experiences for outermost ring groups at School B

The most frequent problem for the four School B groups in the final ring (Clusters 1 and 2 whites and Hispanics) was *Lack of positive contact with the dean*. This issue as well as other interactions between students and the rest of the administration was discussed at length in Chapter 4 that addressed the Organizational habitus of each school. As was mentioned in the previous *Inner ring groups* section, School B's Cluster 2 Native American students have very favorable ratings on all items except the first two listed in Table 8.15.

Ideal Curriculum

For items of the *Ideal Curriculum*, there was one statistically significant ($p<0.05$) item at each school: *Collaboration of students on design projects* at School A and *Theory/criticism* at School B. Even though the figure below shows some variation among School B groups on a few other items (*Professional Practice, Socio-cultural issues, Environmentally responsible design*), these differences did not rise to the level of significance in one-way ANOVAs, perhaps due to small sample sizes and large variation within groups.



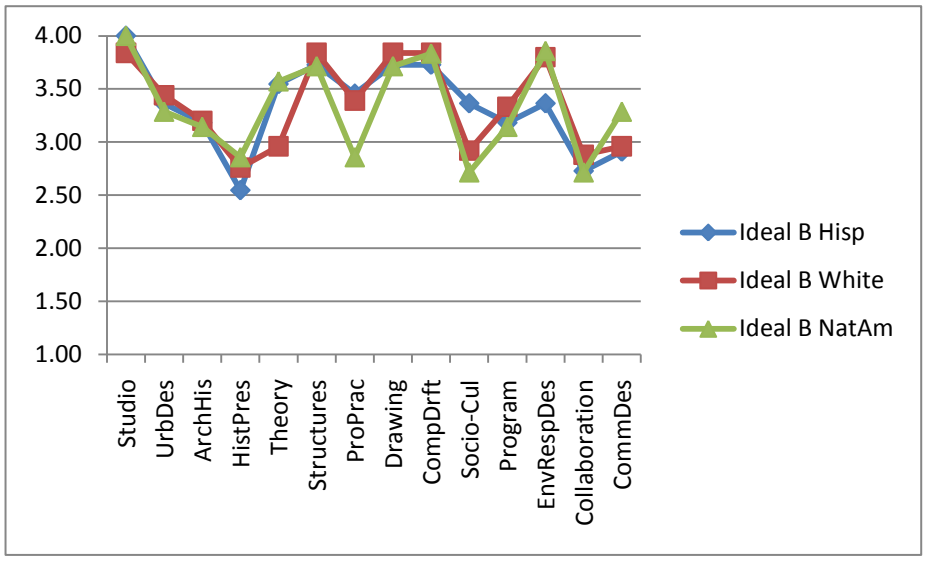


Figure 8.7: Differences among racial and ethnic groups on ratings of *Ideal Curriculum*

School A One-way ANOVAs: Goals and Motivations

Of the 27 items of *Goals and Motivations*, only one emerged as statistically significant ($p<0.05$) after one-way ANOVAs were conducted. That item is in bold in the table below, in addition to ten other items which produced large differences of at least 0.33 among the groups. The largest differences in mean responses are generally found between the Asian-American students and the International students. On items of *Motivations*, the International students are least concerned with practical matters such as *Job security*, *Ability to be a licensed architect* and *Independence*, especially when compared to the Asian-American students.

School A: Motivations	White	Asian-Amer	Int'l stud.
Job security	**2.78**	**3.14**	**1.85**
Ability to be a licensed architect	3.31	3.29	2.77
Independence	3.04	3.43	2.54
Opportunity to create new knowledge	3.04	2.43	3.23
Goals			
To work alone in private arch practice	2.48	2.00	2.92
To work in a med-large arch firm	3.15	3.43	2.69
To work in an arch/engineering practice	2.53	3.14	2.62
To work in an interior design practice	2.23	3.00	2.38

To have an arch position in a corporation	2.16	2.71	2.62
To teach arch at the college level	3.16	2.29	2.85
To work in design/build	3.24	3.00	2.77

Table 8.16: Differences among racial and ethnic groups at School A on items of *Goals and Motivations*
Bold: p<0.05

School B One-way ANOVAs: Goals and Motivations

There were no statistically significant differences among the three racial and ethnic groups at School B on questions of *Goals and Motivations*. There were items for which groups had differences of at least 0.33 in their mean responses, but there was also a lot of variation within these groups. The large standard deviations coupled with the small sample sizes of these groups at School B limits interpretation of the findings. Figures 8.7-8.8 below graphically presents a comparison of mean responses by racial and ethnic groups for School B to *Motivations* and *Goals*, respectively. There is slightly more differentiation among these groups on items of *Motivations* than there is for *Goals*, with the Hispanics responding differently to items of *Fame*, *High income potential* and *Status/prestige*. The following section will compare groups based on Cluster within Race and Ethnicity where it will be apparent that it was specifically the Cluster 2 Hispanics who responded very differently on these items. In fact, their mean responses had to be eliminated from the final MDS analysis, for they unduly affected the plot thereby making interpretation among the remaining groups difficult.

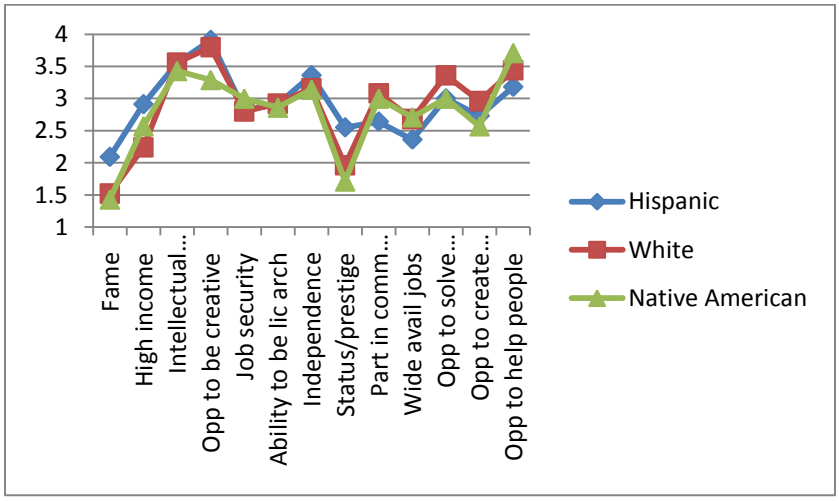


Figure 8.8: Mean responses to items of *Motivations* for School B

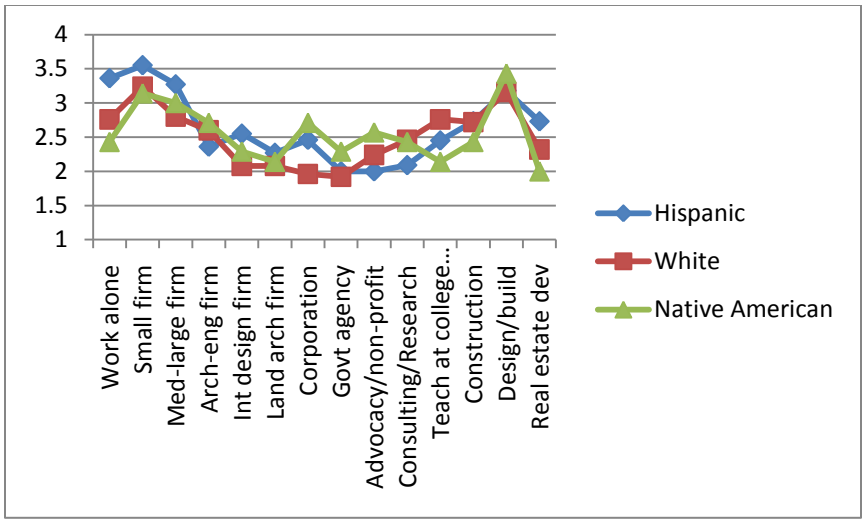


Figure 8.9: Mean responses to items of *Goals* for School B

MDS: Goals and Motivations

In the previous three MDS plots, there was a pattern of four groups from School A being clustered together: all three groups of white students with the Cluster 3 International students. For questions of *Goals and Motivations*, this pattern no longer exists as seen in Figure 8.10. The School A Cluster 2 whites and Cluster 3 International students are now separated and are actually in closer proximity to the School B Cluster 3 whites on the right side of the plot. Two additional groups have been eliminated from the analysis in Figure 8.10, School A Cluster 1 International students and School B Cluster 2 Hispanic students. Their responses were removed because they were clearly outliers in the plot and their extreme responses compressed the remaining eleven groups thereby limiting interpretation of the relationships among those eleven groups.

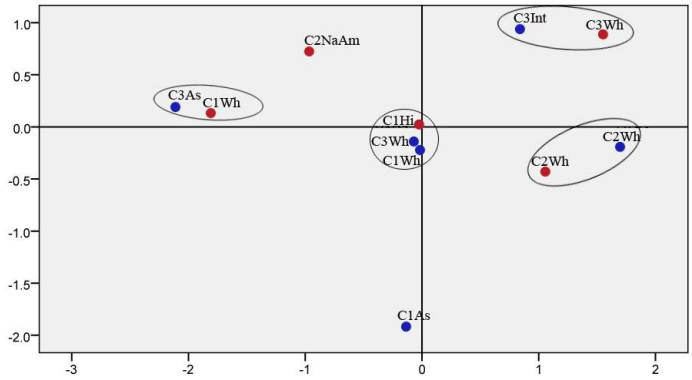


Figure 8.10: MDS plot for questions of *Goals and Motivations*
Stress=0.18312 RSQ=0.82204 (label:Cluster/Race and Ethnicity)

The plot above has been diagrammed into four groupings of points with two points that do not fit into any of the four groupings: School A Cluster 1 Asian-Americans and School B Cluster 2 Native Americans. Unlike the previous three MDS plots, which were diagrammed with concentric circles, Figure 8.10 is not as easily interpretable. The School B Cluster 2 Native Americans are substantially different in their responses and so are the School A Cluster 1 Asian-Americans, to a lesser extent, compared to the other students at their schools. Given each group has a very small sample size of less than four, interpretation of their responses is limited.

For this bank of questions, mean responses will not be presented according to the diagrammed MDS plot of Figure 8.10, but rather they will be organized according to school membership. Presentation of mean responses by school membership is an effective way to first identify the prevailing patterns of response for each school and then to identify those groups who responded differently from the majority of students for each school.

Means Comparison: Goals and Motivations

This section will compare mean responses across student groups within each case study site for questions of *Goals and Motivations*. Only the groups who were included in Figure 8.10 will be discussed in this section.

School A

Most of the student groups from School A who are included in this analysis responded similarly to questions of *Motivations* on the survey. However, there were a few items for which the Cluster 1 & Cluster 3 Asian-American students, the Cluster 2 white students and the Cluster 3 International students responded differently from the majority of School A students; those items are presented in Table 8.17 below with the most different responses in italics and underlined.

The Cluster 3 International students are least motivated by the more practical concerns listed below, items such as *Job security*, *Ability to become a licensed architect* and a *Wide availability of jobs*. They are highly motivated by the *Opportunity to be creative*, *Opportunity to create new knowledge/research* (both mean responses of 3.71), *Intellectual challenge* and the *Opportunity to help people* (both mean responses of 3.57).

In Figure 8.10, they are most distant from the Cluster 1 Asian-Americans at School A, indicating those two groups responded most differently from each other.

School A: Motivations	1Wh	2Wh	3Wh	1As	3As	3Int
High income potential	2.19	2.08	2.24	*2.67*	*3.00*	2.14
Intellectual challenge	3.63	3.58	3.41	*2.67*	*3.00*	3.57
Job security	2.81	2.75	2.82	3.00	3.00	*2.29*
Ability to be a licensed architect	3.33	3.58	3.29	3.67	3.00	*2.86*
Wide availability of jobs	2.40	2.33	2.53	*3.00*	2.50	*2.00*
Opportunity to solve problems/work for social change	3.20	*2.58*	3.12	3.33	3.50	3.29
Opportunity to create new knowledge	3.07	3.00	3.00	*2.33*	3.00	*3.71*
Opportunity to help people	3.40	*2.75*	3.18	3.67	3.50	3.57

Table 8.17: Mean responses to questions of *Motivations* for School A
Underlined and Italicized: Responses of C2 whites, C1 & C3 Asian-Am and C3 International that differ from other groups

In sharp contrast to the Cluster 3 International students, the Cluster 1 Asian-American students are very motivated by the practical concerns listed above. However, there are some areas of overlap between the two groups in that they both exhibit a great interest in social concerns (*Opportunity to solve problems/social change, Opportunity to help people*). The Cluster 1 Asian-Americans' mean response to *Intellectual challenge* as a motivating factor is extremely low; for all other analyses conducted (by cluster, gender and program type), all groups of students agreed that the top two motivating factors to pursue an education in architecture were the *Opportunity to be creative* and the *Intellectual challenge*, which also supports the previous work of Groat & Ahrentzen (1996). The Cluster 1 Asian-American students' deviation from this pattern as well as their high ratings of practical motivations may be indicative of their professional interests in architecture rather than architecture as an educational pursuit. But interpretation of findings are limited by the very small sample size of this groups of students, with N=3.

In addition to responding differently on questions of *Motivations*, the same three School A groups (Cluster 2 whites, Cluster 1 Asian-Americans, Cluster 3 International students) as well as Cluster 3 whites, also responded differently on several of the *Goals* questions. Those items are listed below in Table 8.18, with the most different responses

italicized and underlined. There is a very large difference between the Cluster 1 Asian-Americans and the Cluster 3 International students for the item of *To work alone in architecture practice*, with the former group having very little interest in this job scenario and the latter group expressing a great interest in it. The International students' response to this item is somewhat in discord with their response to the *Motivation* item of *Ability to be a licensed architect*. They expressed much less interest in the ability to be a licensed architect compared to their peers, yet they expressed much more interest in the job scenario *To work alone in architecture practice*. Perhaps they answered these items with the intent to return to their country of origin to practice and were not concerned with the licensing procedures and requirements of the U.S.

School A: Goals	1Wh	2Wh	3Wh	1As	3As	3Int
To work alone in arch practice	2.06	2.92	2.41	*1.67*	2.50	*3.43*
To work in small firm	3.06	3.58	3.29	*2.67*	3.00	3.14
To work in med-large firm	2.94	2.92	*3.47*	3.00	*3.50*	2.86
To teach arch at college level	3.00	*3.67*	3.00	3.00	*1.50*	2.86
To work in design/build	3.31	3.17	3.18	*2.67*	3.00	*2.86*
To work as real estate developer	1.75	2.00	2.00	*2.33*	1.00	2.00

Table 8.18: Mean responses to questions of *Goals* for School A
Underlined and Italicized: Responses of C2 & C3 whites, C1 & C3 Asian-Am and C3 International that differ from other groups

There are two items that illustrate particularly well the differences in responses between the Cluster 1 Asian-American students and the other students at School A: *To work in a small firm* and *To work in design/build*. These two items were consistently the most desired job scenarios, with mean responses greater than 3.00, for the students at School A when analyses were conducted by cluster, gender, and program type. The Cluster 1 Asian-Americans relatively low interest in these two job scenarios gives an indication of how differently they feel about their potential career paths compared to most School A architecture students. They did not rate any job scenario greater than 3.00 on a 4.00 scale, whereas all other groups did; the two items which they rated the highest at 3.00 are listed in Table 8.18 above.

School B

On questions of *Motivations* at School B, the Clusters 2 and 3 white students answered very similarly, but the other three groups, Cluster 1 white and Hispanic and Cluster 2 Native American students have a few items in which they responded quite differently from the other students. Table 8.19 below lists the items for which one of these three groups responded much differently from the remaining students; those responses are italicized and underlined. For instance, the Cluster 1 white students responded relatively lower to the first two items in Table 8.19; this is especially unusual since these two motivations were consistently ranked highly by all groups of students at both schools for all analyses, as was mentioned in the previous section on School A.

School B: Motivations	1Wh	2Wh	3Wh	1His	2Nat
Intellectual challenge	*3.00*	3.70	4.00	3.50	3.67
Opportunity to be creative	*3.33*	3.90	4.00	3.88	3.67
Job security	2.67	2.70	2.80	2.63	*3.67*
Participation in community action	*2.17*	3.20	3.40	2.50	2.67
Wide availability of jobs	*2.17*	2.90	3.00	*2.25*	3.00
Opportunity to solve problems/work for social change	3.17	3.30	3.40	*2.75*	3.00
Opportunity to help people	3.17	3.40	3.40	3.13	*3.67*

Table 8.19: Mean responses to questions of *Motivations* for School B
Underlined and Italicized: Responses of C1 whites, C1 Hispanics and C2 Nat.Americans that differ from other groups

The Cluster 2 Native American students rated *Opportunity to help people* and *Job security* as especially strong motivating factors, tied with the first two items in Table 8.19 as their most motivating reasons to attend architecture school. Although they agreed with the majority of students that *Intellectual challenge* and *Opportunity to be creative* were very important reasons for them to pursue their education, they differ from the other students by rating two other reasons as equally important.

On the *Goals* items, there are not any particular groups to highlight, as all five of the School B groups had at least one item for which they deviated from the rest of the students. These items are italicized and underlined for emphasis in Table 8.20. For these items, now we see that the Clusters 2 and 3 white students express different desires from

their fellow students. For instance, the Cluster 3 whites have a much higher interest in *To teach architecture at the college level*, especially when compared to the Cluster 1 whites and the Cluster 2 Native Americans. The Cluster 2 whites differ most from other students in that they expressed less interest in many of the job scenarios listed in Table 8.20; out of a total of 14 *Goals* items, they rated ten of them equal to or less than 2.50 on a 4.00 scale.

School B: Goals	1Wh	2Wh	3Wh	1His	2Nat
To work alone in arch practice	*1.83*	3.10	3.20	3.13	*2.33*
To work in small firm	*3.00*	3.30	3.60	3.50	*3.00*
To work in med-large firm	3.17	*2.50*	3.00	3.50	3.00
To work in arch/engineering firm	*3.33*	*2.10*	2.60	2.63	2.67
To work in an interior design firm	2.17	*1.90*	2.60	2.75	2.67
To work in a landscape arch firm	2.00	1.90	*2.60*	*2.50*	2.00
To have arch position in a corporation	*1.83*	*1.80*	2.60	2.25	*3.00*
To teach arch at college level	*2.00*	3.10	*3.40*	2.63	*1.67*
To work in design/build	3.00	3.10	*3.60*	3.00	*3.67*
To work as real estate developer	2.33	2.00	2.60	2.50	*1.67*

Table 8.20: Mean responses to questions of *Goals* for School B
Underlined and Italicized: Responses from all groups that differ from majority of other students

In Figure 8.9, the School B Cluster 1 whites and Cluster 2 Native Americans are relatively close to each other on the left side of the plot and distant from all other School B points. Looking at their mean responses to *Goals* questions, they have a similar pattern of response in that both groups expressed a lack of interest compared to their fellow students in the following scenarios: *To work alone in private practice, To work in a small firm* and *To teach architecture at the college level*. They both had a mean response of 3.00 to the item *To work in a small firm*, which does correspond to a rating of *Somewhat appealing*, but is still lower than most other students' ratings. In fact, the Cluster 2 Native American students expressed an equal level of interest in the item *To have an architectural position in a corporation*; the Cluster 1 white students actually showed more interest in the item *To work in an architecture-engineering firm* than they did for *To work in a small firm*. These two items (*corporation* and *arch-engineering firm*) generally had very low mean responses for all students from both schools for all analyses. The fact

that the Cluster 1 whites and Cluster 2 Native Americans expressed as much or even more interest in such job scenarios illustrates how differently they envision possible career paths.

Conclusion

To reiterate, all findings presented in this chapter must be interpreted with caution because of the very small sample sizes of the racial and ethnic minority groups at both Schools A and B. In fact, four groups were eliminated from the final analyses because their responses were outliers, which could be attributed to their especially small sample sizes of only one or two students per group. It is difficult to draw firm conclusions regarding how race and ethnicity with cluster membership shape students' educational experiences when certain racial and ethnic groups and/or clusters were not represented in the final analyses.

Both schools' samples of architecture students were predominantly white: 66% at School A and 55% at School B. However, these numbers for the architecture student samples are very close to the overall proportions of white students at each school. The table below lists the demographic information for all of School A and School B students (source: US News and World Report, 2007).

	School A	School B
African-American	7%	3%
Asian-American	12%	4%
Hispanic	5%	35%
Native American	1%	7%
International students	5%	1%
White	70%	50%

Table 8.21: Racial and ethnic distributions for School A and School B

As was discussed previously in the *Demographics* section, the problem of small sample sizes in racial and ethnic minority groups in this study cannot be attributed to poor response rates but rather to the relatively small pool of these students from which to sample. Furthermore, when groups were created considering both Cluster membership within Race and Ethnicity in a 3x3 matrix, sample sizes became even smaller.

Referencing back to Table 8.2, some groups did not even exist at School B, such as Cluster 3 Hispanics or Cluster 3 Native Americans.

Even though there were substantial limitations in interpreting responses for this analysis, there are a number of key points to highlight:

- School A Asian-American students responded least favorably on select items of *Studio Experiences* and *Satisfaction*, but most favorably on items of *Problematic Experiences*
- All of the white students and Cluster 3 International students at School A responded with similar rates of high satisfaction
- School A Cluster 1 International students and School B Cluster 1 white students were the most consistently dissatisfied groups at each case study site
- School B Cluster 2 Hispanics and Native American students are overall more satisfied than white students at School B
- Asian-Americans and International students responded the most differently from each other on *Goals & Motivations* with the former group being highly motivated by practical matters
- There was a fair amount of consensus on the desirability of job scenarios (with *Working at a small firm* and *Working in design/build* highly rated), but School B Cluster 1 whites expressed a similarly high level of interest in *To work for an arch-engineering firm* and Cluster 2 Native Americans rated *To work in an architectural position for a corporation* just as highly.

Chapter 9

Analysis Summary

Introduction

This chapter will present a concise summary of the previous four chapters that identified and highlighted differences among student survey and interview responses with students grouped by cluster membership, gender within cluster, program type as well as race and ethnicity at each school. To reiterate, this research is exploratory in nature, using a Bourdieuian theoretical framework to primarily understand the differences in student experiences given their varying levels of cultural capital. Although a student's level of cultural capital is of prominent importance in this research, other characteristics that define a student and would likely shape students' educational experiences, such as gender, race and program type are considered as well. The survey instrument employed in this dissertation research was primarily adapted from the work of Groat & Ahrentzen (1996) which only focused on the experiences of female and minority students at six U.S. architectural schools; commonalities in findings between the present research and Groat & Ahrentzen (1996) will be woven throughout this chapter.

Cluster Membership

Demographics

To begin, demographics for each school are presented to illustrate the distribution of students by cluster membership. Figure 9.1 below provides a quick graphic display of the proportion of each cluster represented at Schools A and B. Clearly, School A is mostly Clusters 1 and 3 and School B is mostly Clusters 1 and 2. A brief discussion of how each cluster has been defined for this research follows.

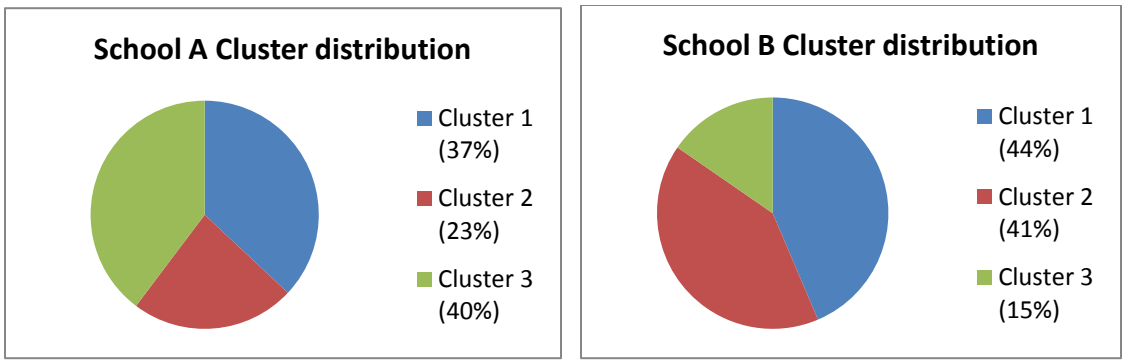


Figure 9.1: Distribution by cluster for School A (left) and School B (right)

Chapter 5 presented the results of the K-means cluster analysis that produced a three cluster solution based on students' responses to 11 measures of cultural capital. Clusters 2 and 3 are relatively straightforward in their interpretation: students grouped into Cluster 2 had much lower levels of parental education (averaging between high school graduate and having completed some college) and generally lower levels of participation in cultural activities, in contrast to Cluster 3 students, who had much higher levels of parental education (averaging between college graduates and graduate degree) and higher rates of participation in cultural activities. Based on these 11 cultural capital measures, Cluster 2 students can be understood as having accumulated smaller amounts of cultural capital from their upbringing compared to Cluster 3 students who have high levels of accumulated cultural capital.

Cluster 1 students share similarities with both Clusters 2 and 3 in that their parents have higher levels of education (averaging slightly more than a four-year college degree), similar to Cluster 3, but they also have generally lower levels of participation in extracurricular cultural activities, similar to Cluster 2 (see Table 9.1 below).

	Cluster 1	Cluster 2	Cluster 3
Parental Education	High ↑	Low ↓	High ↑
Cultural Participation	Low ↓	Low ↓	High ↑

Table 9.1: Differences in cultural capital measures among the three clusters

Defining this category of Cluster 1 students is extremely important to this analysis, in that Cluster 1 students at both schools are consistently the least satisfied group of students. As more analyses were conducted, considering the role of gender, program type as well as race and ethnicity, differences were found within Cluster 1, finding that these three

factors were also interacting to shape students' experiences[70]. Additional attention will be given to Cluster 1 throughout this chapter, in an attempt to more clearly define who they are and speculate why they tended to consistently respond the most unfavorably of all clusters at both schools.

Key Findings of Clusters in Aggregate Data

Before analysis was conducted on the individual schools, one-way ANOVAs were performed examining differences in mean responses among the clusters, including all students from both schools in the analyses. Cluster 1 consistently had the most negative ratings on questions of *Studio Experiences* and *Satisfaction,* specifically dealing with interaction with instructors, compared to Clusters 2 and 3 who had overall favorable ratings on these banks of questions.

Out of the 16 questions regarding students' frequency of encountering *Problematic experiences* in their education, only two items were statistically significant among the clusters with a one-way ANOVA, $p<.05$, with again Cluster 1 reporting the most frequent problems. However, for this category of questions, differences among the clusters were fairly subtle, with Clusters 2 and 3 reporting higher frequencies than Cluster 1 on particular problems. Cluster 2, for instance, experienced the most frequent problems of all three groups in the areas of *Financial problems* and *Feeling the rewards of an architecture degree are not worth it*. Compared to most of their responses, which were low, indicative of less frequent problems, Cluster 3 had an especially high mean response to the item of *Lack of confidence in my design/academic abilities*. These findings indicate that none of the clusters are exempt from problems in their educations, but rather each group has at least one issue that is particularly problematic for them.

On the 13 questions regarding students' motivations to pursue an education in architecture, no statistically significant differences emerged among the clusters in one-way ANOVAs. In fact, out of all eight categories of survey questions, the cluster

[70]Ideally, a multi-variate analysis technique such as multiple analysis of variance (MANOVA) would be employed to identify the existence and strength of the interactions of cluster with gender, program type and race on students' survey responses. Unfortunately, after several iterations of MANOVA, it was deemed inappropriate to use in this research because of small sample sizes and large variances within several groups. Given the constraints of this data set, all statistical analysis that compare mean responses will consider the effects of only one variable at a time, using one-way ANOVA.

responses are most similar for this particular group of *Motivation* questions. Everyone's top two motivations in choosing to study architecture are *Intellectual challenge* and *Opportunity to be creative*, closely followed by the *Ability to be a licensed architect* as a motivating factor. For the 15 items of potential future job scenarios, in which students rated their desirability, three statistically significant differences ($p<0.05$) emerged in one-way ANOVAs with Cluster 2 consistently exhibiting the least amount of interest in these particular career paths: *To work in a medium-large architecture firm, To work in an architectural-engineering firm,* and *To work for an advocacy group/non-profit*.

For items evaluating present and ideal curricular emphases, the majority of statistically significant differences ($p<0.05$) emerged among clusters for ratings of their present curricular emphases. Cluster 3 consistently perceived the most emphasis in their present curriculum for all five significant items: *Structures, Professional Practice, Computer drafting/modeling skills, Environmentally responsible design*, and *Community design work*. All clusters had substantive agreement on ratings of their ideal curriculum, with *Design studio, Drawing/graphic skills* and *Environmentally responsible design* being the most desired aspects of everyone's ideal curriculum.

These findings give a brief overview of broad patterns of difference and similarity among clusters, without considering school membership. Clearly, Cluster 1 had the least favorable responses in terms of their studio experiences and satisfaction with their educations. Employing a Bourdieuian framework in this research, specifically building upon the work of Stevens (1998), it was anticipated that those students who had the least accumulated cultural capital (Cluster 2) would have responded most unfavorably, but that was not found. Cluster 2 students were very close in satisfaction with their educations to the most privileged students of Cluster 3. The only way in which Cluster 2 differed from its fellow students was on interest levels in future job scenarios. The following section will compare responses among clusters within each school to identify the extent to which these overall patterns identified for each cluster are present at each school.

Key Findings of Clusters Defined by School Membership

Table 9.2 below presents the sample size for each cluster within Schools A and B. The chi-square analysis for this cluster distribution between the two schools was

statistically significant with p=0.02. As has been mentioned throughout all analyses chapters, Cluster 3 at School B has been problematic because of its small sample size as well as large variances within the group for many survey items. All interpretations of the findings regarding this group of students have been exercised with caution.

	Cluster 1	Cluster 2	Cluster 3	Missing[71]	Total
School A	27	17	29	8	81
School B	17	16	6	7	46

Table 9.2: Cluster distribution within School A and School B

When cluster responses were compared within each school for questions of *Studio Experiences*, *Satisfaction* and *Problematic Experiences*, the consistent pattern of more negative responses for Cluster 1 still held true at both schools. Overall, all of School B's responses were less favorable than School A's responses, but School B's Cluster 1 responses were still markedly more negative than School B's Clusters 2 and 3. All statistically significant differences among clusters at each school were related to either interactions with the administration or faculty, with both schools' Cluster 1 reporting the least favorable experiences in these areas; no problems were reported with fellow students. However, there is a large difference between schools to highlight, in that there were only two significant items at School A compared to seven significant items at School B, in which Cluster 1 responded most unfavorably at both schools. In other words, at School A, Cluster 1 differs from its fellow students on only a few select items, whereas at School B, there is a larger range of items for which Cluster 1 feels much more negatively than the other two clusters.

Comparing these differences between Schools A and B, faculty interviews were referenced in Chapter 5 to qualitatively document the broad differences in organizational habitus and atmosphere between the two schools. Facutly A interviews were marked by an explicit understanding of how their students' backgrounds impact experiences in architectural education. They expressed high expectations for their students and highlighted the importance of their students' openness to learning and encountering new experiences. By contrast, Faculty B interviews did not make explicit connections

[71] If a student did not answer one of the 11 cultural capital survey questions, s/he was excluded from the K-means cluster analysis.

between students' backgrounds and architectural education but rather made assessments of their students *implicitly* based on their backgrounds. School B students were described as lower caliber students compared to those from more prestigious schools, leading to Faculty B expressing lowered expectations of their students because they were "School B students." The interaction of both student and faculty expectations is complex and is perhaps one of the many factors that are contributing to an environment for overall more favorable student experiences at School A compared to School B.

For questions of *Goals and Motivations*, School A Cluster 2 differed from its fellow students in the one-way ANOVAs and MDS analyses. Although only two out of 27 items had statistically significant differences for School A, *Opportunity to help people* and *To work for an advocacy group or non-profit*, both showed Cluster 2 expressing the least interest in these socially motivated areas. There were three other items related to social concerns in this bank of questions, *Participation in community action*, *Opportunity to solve important problems/work for social change*, and *To work for a government agency*, all of which Cluster 2 had the lowest mean responses. In addition to exhibiting a lack of interest in social concerns compared to its peers, School A Cluster 2 also had the least amount of interest in a variety of job scenarios. Although none of the clusters at School A rated the alternative career paths listed with great interest, e.g., *To work in a government agency*, *To work in construction/contracting*, Cluster 2 responded with the least interest to such job scenarios. Most appealing to them were the prospects of *To work in a small firm* and *To teach architecture at the college level*. This pattern of response for School A Cluster 2 follows the pattern identified and discussed in the previous section with data analyzed in aggregate form.

At School B, there were four statistically significant ($p<0.05$) differences on job scenarios among School B clusters, but no striking pattern emerged for Cluster 2 or any group. With the exception of School A Cluster 2 on select *Motivation* items, there was a fair amount of agreement on what most motivates all students from both schools to pursue architecture and what jobs they most desire. All clusters at both schools agree that the *Opportunity to be creative* and the *Intellectual challenge* are two of the most important motivators in pursuing an architectural education; this supports the findings of Groat & Ahrentzen's (1996) extensive study of six U.S. architectural programs. All

clusters, except for School A's Cluster 2, rated the *Opportunity to help people* as one of their top three motivators; for School A Cluster 2 it was instead the *Ability to be a licensed architect*. One of the most agreed upon desired work scenarios for all groups from both schools is *To work in a small firm*.

Before responses were analyzed according to cluster membership for questions of *Perceived* and *Ideal Curriculum*, aggregate responses for Schools A and B were compared, which found that both schools agreed on three areas that were most lacking in their present curriculum: *Professional Practice, Environmentally responsible design* and *Community design work*. Examining responses by cluster at both schools, all six groups agreed that they wanted substantially more emphasis (approximately one point on a four point scale) in these three areas, but School B Cluster 1 had the largest gap between perceived and ideal ratings for *Professional Practice*, desiring over two points more emphasis. School A's Cluster 1 varied slightly from their fellow students in the areas of *Theory & Criticism* and *Environmentally responsible design*; they wanted less emphasis in the former and more emphasis in the latter compared to their classmates. These differences that emerged for both schools' Clusters 1 suggest that these students may be more interested in the practical and technical aspects of architectural education compared to their fellow students and this may be one source of their discontent with their educations.

The following bullet points outline the key findings from the analysis conducted by cluster for each school:

- Overall, School B's responses are more negative than School A's, such that the most satisfied group at School B has responses that are comparable to School A's least satisfied group
- Both Schools A and B Clusters 1 responded least favorably compared to Clusters 2 and 3
- There was substantial agreement on questions of *Goals and Motivations* among clusters across schools, with the exception of School A's Cluster 2 who showed a lack of motivation and interest in social concerns

- All groups of students from both schools agreed on the three aspects most lacking in their educations, although both schools' Clusters 1 had the largest gaps between their *Perceived* and *Ideal Curriculum* on these three items: *Environmentally responsible design*, *Professional practice*, and *Community design work*

Gender within Cluster

Demographics

To begin, the distribution by gender within cluster is presented for each school, shown below in Figure 10.2. Both school's Clusters 1 are male majority, with almost a 3:1 ratio at School A and close to a 2:1 ratio at School B. School A's Cluster 3 is overwhelmingly female, again close to a 3:1 ratio. The chi-square analysis was statistically significant for School A's distribution, with $p<0.001$, but was not significant for School B's distribution.

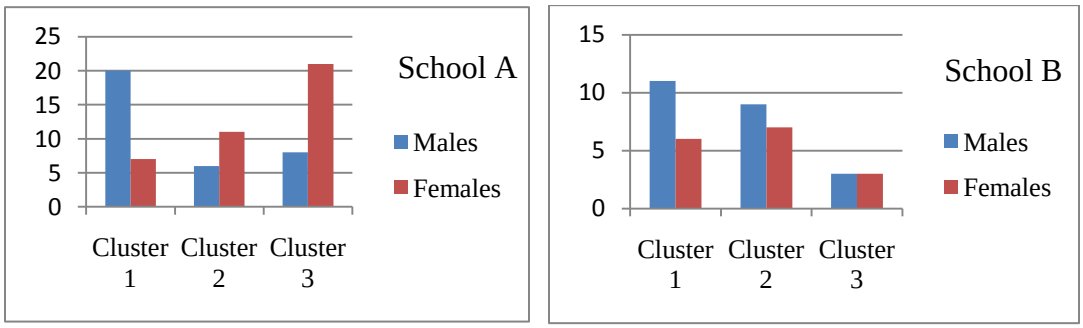


Figure 9.2: Distribution by Gender within Cluster for School A and School B

Key Findings of Gender within Cluster

Cluster 1 showed the most differences when responses were compared by gender within cluster for School A and Cluster 3 had the most differences by gender for School B. Both schools' Clusters 2 responded overall positively with no major differences between the genders. When analyses were conducted comparing males and females within School A Cluster 1 to questions of *Studio Experiences* and *Satisfaction*, it was the males who were clearly more dissatisfied on these two banks of questions, with four statistically significant differences ($p<0.05$) emerging between the two in one-way ANOVAs. In addition to those differences, the males' pattern of discontent was evident

in all questions of *Satisfaction*, where they had consistently less favorable responses than the Cluster 1 females. These School A Cluster 1 males' responses do need to be considered in context, in that their satisfaction ratings were close to 3.0 on a 4.0 scale, compared to the females whose average ratings were closer to 3.75 on a 4.0 scale. In other words, the School A Cluster 1 males should only be considered *relatively dissatisfied* when compared to their female counterparts in Cluster 1 and the other students at their school.

Unlike at School A, the School B Cluster 1 one-way ANOVAs by gender did not produce any statistically significant differences, thereby demonstrating that the pattern of discontent that was documented for Cluster 1 in the previous section holds true for both males and females at School B. This is further supported by the MDS plots for these questions in Chapter 6 in which both School B Cluster 1 males and females are relatively close to each other, but separated by a far distance to all other points.

Both schools' Clusters 3 generally had favorable responses to these two banks of questions, but when responses were compared by gender within this cluster, there are differences to discuss on a few items. School A's Cluster 3 females responded significantly more favorably ($p<0.05$) than their male counterparts on *How satisfied are you that you received a well-rounded education*; this was also one of the statistically significant items for the genders of School A Cluster 1, in which the females reported higher levels of satisfaction. Citing student interviews for support, it was speculated in Chapter 6 that perhaps there is a different conceptualization of what a "well-rounded education" entails for males and females of these clusters at School A.

School B's Cluster 3 did not have any statistically significant differences for these two banks of questions, but the males did consistently have a more favorable pattern of responses compared to the females. The Cluster 3 females were generally satisfied with their educations, but on a few select items regarding satisfaction with faculty, their ratings plummeted. Given the sample size is extremely small for this cluster, with only three males and three females, it is difficult at this point to extrapolate from these findings to the larger population of Cluster 3 at School B.

For questions of *Problematic Experiences*, School A Cluster 1 males did not report a higher frequency of problems compared to their fellow students. There were no

statistically significant differences between genders for any of the three clusters at School A and the MDS plot of mean responses to these questions show a fairly tight grouping of all School A points, indicating similar patterns of responses for all of their students. There was a subtle pattern of difference between all males and all females, regardless of cluster membership for the item of *Lack of confidence in design/academic abilities*, with the females reporting this to be a more frequent problem.

Again, as was found for questions of *Studio Experiences* and *Satisfaction*, both genders of School B's Cluster 1 responded most unfavorably to questions of *Problematic Experiences*. For School B Cluster 3, males and females were split on two statistically significant items ($p<0.05$), with males reporting much more frequent *Financial problems* and females reporting the *Actions of a particular instructor were discouraging* as more frequently problematic. The females' response to this item reinforces their pattern of negativity to survey items regarding faculty. Interviews were cited with this particular group of women in Chapter 5, in which they all made reference to the difficulties they had encountered with the faculty during their educations.

For questions of *Goals and Motivations*, there were statistically significant ($p<0.05$) differences between the genders within all clusters at both schools, but the most compelling differences were found between the males and females of both schools' Cluster 2. The MDS plot for this bank of questions had the most integration of the two case study sites, with the exception of both schools' Cluster 2 males and School B's Cluster 3 points. Given the problems previously discussed with School B's Cluster 3, interpretation of findings regarding this group were extremely limited.

As was referenced in the previous section that summarized findings from analyses by cluster, School A's Cluster 2 exhibited a lower interest in social concerns and motivations compared to their fellow students. When responses were compared by gender within School A Cluster 2 for these items, it was the males who had particularly low mean responses. Also, the Cluster 2 males have much less interest in a variety of job scenarios when compared to the corresponding females. These differences in what motivates these males and females to pursue architecture as well as what jobs they consider desirable likely account for the large distance that separates them in the MDS plot for *Goals and Motivations* in Chapter 6.

In considering gender differences on students' *Goals and Motivations*, Groat & Ahrentzen (1996) found that male students were generally more interested in traditional career paths and females were more open to alternative careers such as working for *Advocacy groups* and *Government Agencies*. In the present research, only subtle gender differences were found for the majority of alternative career options, with males rating them slightly less than *Not very interested* and females rating them only slightly more than this. However, both Schools A and B had statistically significant differences ($p<0.05$) on items of *Interior Design* and *Landscape Architecture* with both groups of females expressing much more interest in these two fields, which could be considered non-traditional career paths for those with a degree in Architecture.

At School B, the differences between the genders of Cluster 2 on this category of questions deal with varying interest levels in potential job scenarios. The males and females of this cluster generally agree on *why* they are pursuing an education in architecture, but differ on what career options are of primary interest to them[72]. The males have a clear division between job scenarios they rated highly (3.0 or greater on a 4.0 scale) and those they had minimal interest in (2.0 or less), whereas the females rate almost all of the scenarios with somewhat moderate interest, between 2.0 and 3.0.

For questions on *Perceived* and *Ideal curriculum*, there were a number of statistically significant differences ($p<0.05$) between the genders within Clusters 1 and 3 at School A and within Cluster 3 at School B. Most striking were the differences that emerged between School A Cluster 1 males and females on their ideal ratings of *Architectural history* and *Theory & Criticism*, with the females of this group desiring significantly more emphasis in these two areas compared to their male counterparts. These gender differences further refine the discussion on School A Cluster 1's desire for curricular issues reflective of broader social engagement (e.g., *Environmentally responsible design*) in their education, in that such desires only apply to the *males* of this cluster. Furthermore, the fact that School A Cluster 1 males also had lower rates of satisfaction provides support to the notion that their dissatisfaction may be connected to their feeling that their education is lacking in the aspects they desire.

[72] Both males and females of School B Cluster 2 rated *To work in a small firm* very highly, as did all other groups at both schools. Other than this item for which they had great agreement, there was little common ground on ratings of job scenarios for Cluster 2 males and females.

The present research found gender differences in ideal curriculum ratings (not considering the role of cluster), similar to those of Groat & Ahrentzen (1996), but only for School A. The School A females reported that they ideally would have substantially more *Social-cultural issues, Architectural history* and *Historic preservation* in their curricula. In addition to having higher mean ratings of ideal emphasis in these three areas, Groat & Ahrentzen also found the females in their study desired more *Environmentally responsible design* and *Community design work*; no such differences were found in the present research.

The following bullet points summarize the highlights from analyses conducted with groups defined by gender within cluster:

- School A Cluster 1 *males* responded most unfavorably at their school
- School B Cluster 1 did not have any differentiation by gender; both males and females responded most unfavorably at their school
- School A Cluster 2 males responded most differently on items of *Goals and Motivations*, being the least motivated by social concerns and having the least interest in non-traditional job scenarios
- School A Cluster 1 males have the largest gaps between their *Perceived* and *Ideal Curricula* ratings in practical/technical areas
- Although School B Cluster 3 had a number of statistically significant differences by gender, interpretation of these differences is severely limited by the small sample sizes

Program Type

Demographics

The majority of analyses presented in Chapter 7 defined student groups only by program type as either UG, 2G or 3G without considering cluster membership. For particular items that produced statistically significant results ($p<0.05$) in one-way ANOVAs, these groups were further defined by cluster within program type. The figure below is a graphic display of the distribution by cluster within program type for both schools. The problem encountered with defining groups by cluster within program type

is that sample sizes for particular groups, especially for the Master of Architecture students were very small at both schools.

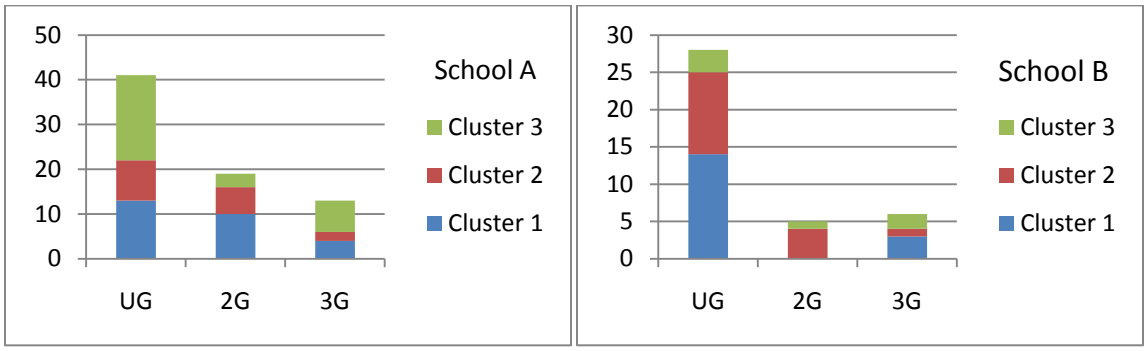


Figure 9.3: Distribution of Clusters within Program type at School A and School B

Key Findings by Program Type

On questions of *Studio Experiences*, there were similar statistically significant ($p<0.05$) differences between the UGs and the Master of Architecture students at both schools in that UGs generally had different perceptions of their studio curriculum when compared to the 2Gs and 3Gs. This is to be expected since the 2Gs and 3Gs share a similar curriculum at both schools. There was one statistically significant item in this category of questions for which the School A 2Gs responded much differently and less favorably than their fellow UGs and 3Gs: *There is considerable unity and academic sharing*. A number of interviews with School A 2Gs were cited in Chapter 7 to document the lack of camaraderie and connection that 2Gs felt with fellow 3G students. This was a phenomenon only found at School A for the 2Gs; further implications of this finding will be discussed in the following final chapter.

On questions of *Satisfaction*, only one statistically significant ($p<0.05$) difference emerged among program types at each school. At School A, it was an item regarding *Overall teaching ability* of faculty in which the UGs were significantly less satisfied. When responses were further examined by cluster within the UGs, it was the Cluster 1 UGs who were the least satisfied on this item. Even though there was only one significant difference among groups at School A, a clear pattern emerged with the UGs generally responding least favorably and the 3Gs responding most favorably to these questions. When these groups were further defined by cluster membership, it was specifically the Cluster 1 UGs who were the least satisfied and the Cluster 3 3Gs who

were the most satisfied. Again, findings for School A need to be kept in context that all student responses were generally favorable, so it is a *relative dissatisfaction* that the Cluster 1 UGs report.

At School B, the one significant item was *How satisfied are you that you received a well-rounded education*, in which the 2Gs responded far more favorably than the other two groups. There was no clear pattern of satisfaction for any group at School B, rather each program type "took turns" being the most or least satisfied with School B mean responses indicating lower levels of satisfaction across all program types compared to School A. The lowest ratings at School B for all three program types were for aspects of *Faculty satisfaction*. Interviews with School B students were referenced in Chapter 7 regarding students' disappointment with faculty, with two key themes emerging: faculty's lack of guidance and lack of interest in teaching. This is a complicated issue to dissect, in which both student and faculty expectations need to be considered as well as the organizational habitus of School B. The intertwining of these factors, as they contribute to an understanding of the lower rates of satisfaction at School B, will be thoroughly addressed in the following final chapter.

On questions of *Problematic Experiences*, only one statistically significant difference emerged in one-way ANOVAs at School A and none did at School B. After examining mean responses, the same subtle pattern was found at both schools in that the UGs reported slightly more frequent problematic experiences than the Master of Architecture students. When responses were further compared by cluster within program type, it was specifically the Cluster 1 UGs at both schools who were reporting the most frequent problems. Again, overall the Cluster 1 UGs at School B had much higher mean responses to these items than their comparable group at School A, indicating more frequent problematic experiences. The areas that were most frequently problematic for this group at School B related to dealings with the administration, as well as *Limited jobs in architecture*.

For questions of *Goals and Motivations*, again only one statistically significant ($p<0.05$) difference was found among program types at School A for the job scenario of *To teach architecture at the college level*, with UGs expressing much less interest than the 2Gs and 3Gs. In fact, the desirability of this career path for the 2Gs and 3Gs was

comparable to their ratings of *To work in a small firm*, which was generally the most desired job scenario for School A students. The School A UGs generally had higher mean ratings for all of the other job scenarios indicating more openness to a variety of career directions compared to the 2Gs and 3Gs.

A pattern that emerged for both schools' 3Gs was their general lack of concern with practical motivations in pursuing architecture, such as *High income potential* or *Job security*, compared to the other two program types at their schools. At School B, the 2Gs and 3Gs expressed certain non-traditional career interests that were unique to these two groups. Even though the School B UGs were open to a wider variety of career paths than the 2Gs or 3Gs, their top scenarios were the generally popular ones of *To work in a small firm* and *To work in design/build*.

Considering the differences in mean responses to questions of *Perceived* and *Ideal Curriculum* by program type, School A 3Gs have the smallest differences out of all six groups from both schools, indicating their ideal education is quite similar to their present education. Especially lacking for the School A UGs and 2Gs is their perceived emphasis on *Environmentally responsible design* in their present curricula. One curious finding was the relative placement in order of ideal emphasis of *Professional practice* between the UGs and the Master of Architecture students at School A, with the UGs ranking it near the top as one of the most important aspects of their education, and the graduate students ranking it near the bottom. When responses were further defined by cluster membership within program type for School A, there were no differences found among the UG clusters on the relative importance of *Professional practice.*

All program types at School B had large differences between their ratings of *Perceived* and *Ideal Curriculum* on all aspects except *Design studio* and *Drawing & Graphic skills*, indicating that none of the program types had a particularly good fit between their present and ideal educations. All School B program types had a number of practical aspects that they felt were especially lacking in their present curricula. The UGs and 2Gs wanted a lot more emphasis on *Professional Practice* and the 3Gs desired much more emphasis on *Computer drafting & modeling*.

The following bullet points summarize the key findings from analysis conducted by program type:

- There is a subtle pattern of discontent among the UGs (specifically Cluster 1) at School A compared to the Master of Architecture students
- No one program type emerges as either most or least satisfied at School B, but rather all groups have fairly low ratings of satisfaction; all groups had especially low ratings of satisfaction with their faculty
- On *Goals & Motivations*, both schools' UGs showed more interest in a wider variety of potential job scenarios compared to graduate students
- All three groups at School A have a better fit between their *Perceived* and *Ideal Curriculum* ratings than the groups at School B, with the School A 3Gs having the tightest fit; no group at School B has a good fit except on items of *Studio* and *Drawing* emphasis

Race and Ethnicity

Demographics

Of all four methods of grouping students (cluster, gender, program type and race and ethnicity), the analysis by race and ethnicity presented the most challenges for both schools. To briefly reiterate from Chapter 8, firstly, both schools have a predominantly white student population, with the remaining students only comprising a small fraction of the total number of architecture students. Secondly, each school had different racial and ethnic minority groups, which did not allow for the same groups to be compared across schools. Lastly, as groups were determined considering both a student's cluster membership as well as his/her race and ethnicity, sample sizes for the minority groups became very low with several being equal to or less than three.

Several racial and ethnic minority groups had to be removed from both schools' final analyses because of such small sample sizes; African-Americans and Hispanics were eliminated from School A and African-Americans and International students were eliminated from School B. The figure below graphs the distribution of cluster within race and ethnicity for both schools. Chi-square analyses could not be conducted for either school as too many cells had counts less than five. Another issue with defining groups in this manner for these samples is that some groups did not exist for particular clusters, thereby making comparisons across some clusters impossible.

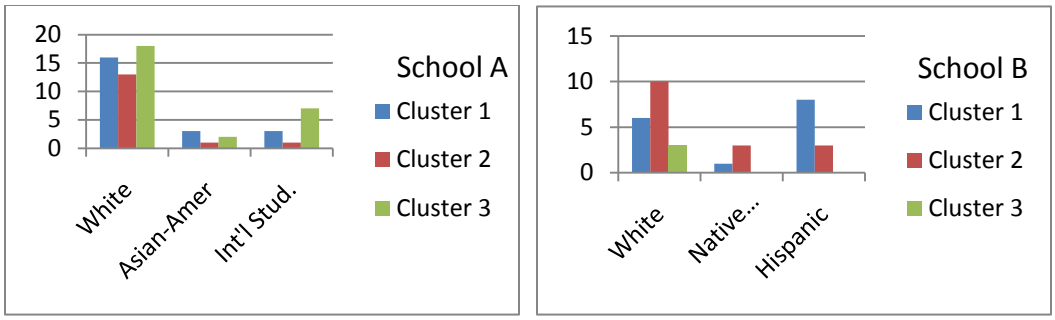


Figure 9.4: Distribution of Cluster within Race and Ethnicity at School A and School B

Key Findings by Race and Ethnicity

There were four statistically significant differences ($p<0.05$) in one-way ANOVAs on questions of *Studio Experiences* when students were grouped by race and ethnicity at School A. Two items related to perceptions of the program and two items related to social dynamics and interactions in the program. On the latter two items (*This program is supportive of racial diversity* and *This program is a conducive environment for new ideas*), it was the Asian-American students who responded the least favorably. For School B, there were no statistically significant differences among the three groups defined by race and ethnicity. The MDS plot for these questions from Chapter 8 helps interpretation for both schools and identifies the School B Cluster 1 whites and the School A Cluster 1 International students as very distant from the remaining points, indicating a different pattern of response for these two groups. Looking more carefully at their responses, both groups have unfavorable patterns of response for *Studio Experiences*.

The same pattern holds true for these two groups on statistically significant ($p<0.05$) items of *Satisfaction*. School A Cluster 1 International students were significantly less satisfied with faculty's *Currency in the field* and School B Cluster 1 white students were significantly less satisfied on that same item as well as faculty's *Ability to relate to students*. There was an overall pattern of negativity on all *Satisfaction* items from the School A Cluster 1 International students, but they did not rise to the level of significance likely because of the large variance within this group combined with a small sample size of three. Although the School B Cluster 1 white students were a

relatively small sample of six, these students were consistent in their less favorable ratings.

For questions of *Problematic Experiences*, there were no statistically significant ($p<0.05$) differences among racial and ethnic groups at School A and there were two such differences among the three groups at School B; for both items, it was the Native American students who answered differently from the other two groups. One of the items was *Lack of positive interaction with the dean*, which Native Americans reported happening very infrequently. As has been discussed previously in Chapter 7, problems with the administration, specifically the Dean and Assistant Dean at School B were common; on this point, the Native American students apparently do not experience what most of their fellow students do. Considering the role of cluster in these analyses at School B, the Cluster 1 white students had the least favorable pattern of response to these questions.

For questions of *Goals and Motivations*, only one statistically significant difference ($p<0.05$) emerged among the three groups at School A and none did at School B. For School A, the significant item asked how motivating *Job security* was to students in pursuing a degree in architecture; the largest difference was between the International students and the Asian-American students, with the former group expressing very little concern with this area. This pattern of difference between the International students and Asian-Americans was subtly repeated for the other practical motivation items of *Ability to be a licensed architect* and *Wide availability of jobs*.

At School B, when responses were compared for students also considering cluster membership, two groups had somewhat different patterns of response on items relating to job scenarios. Both the Cluster 1 whites and Cluster 2 Native Americans expressed a lack of interest in traditional job scenarios (e.g., *To work alone in private practice*, *To work in a small firm* and *To teach architecture at the college level*) compared to their peers, but expressed more interest in generally less popular job scenarios (e.g., *To have an architectural position in a corporation* and *To work in an architecture-engineering firm*). The fact that the Cluster 1 whites and Cluster 2 Native Americans expressed as much or even more interest in such job scenarios illustrates how differently they envision possible career paths.

Groat & Ahrentzen (1996) found that African-American students were more concerned with practical motivations (e.g., *High income potential, Job security, Wide availability of jobs*) in pursuing architecture, similar to what was found with the Asian-Americans from School A in the present study. Furthermore, they also found that African-American students were generally more open to non-traditional career paths, similar to particular clusters of whites and Native Americans at School B who showed greater interest in alternative careers.

Overall, there were very few statistically significant differences by race and ethnicity on *Perceived* and *Ideal Curriculum* questions for either school. The three groups of School B students had slightly more variation among them in their *Perceived curriculum* responses than did the School A students, but neither school had statistically significant differences for these items. On *Ideal curriculum* questions, each school had one statistically significant difference ($p<0.05$): *Collaboration of students on design projects* at School A and *Theory/criticism* at School B. At School A, it was the International students who desired significantly more emphasis in this area and at School B, it was the white students who wanted much less emphasis in this aspect. The MDS plot confirms that there were very few differences among groups within each school, as each school's Perceived points are tightly clustered, as are their Ideal points.

The bullet points below highlight the key findings from analysis by race and ethnicity:

- A pattern of discontent was evident for School A Cluster 1 International students and School B Cluster 1 white students; interpretation of this finding for the School A group is extremely limited because of small sample size and large variances
- At School A, Asian-Americans and International students responded most differently on questions of *Goals & Motivations*, specifically on questions of practical matters, with the former group expressing much greater concern than the latter group
- At School B, the Cluster 1 whites and Cluster 2 Native Americans were most open to non-traditional career paths

Conclusion

This chapter highlighted the key findings from the previous analyses chapters which examined student responses to survey questions of *Studio Experiences, Satisfaction, Problematic Experiences, Goals & Motivations* and *Perceived & Ideal Curriculum*, with students grouped according to cluster membership, gender within cluster, program type as well as race and ethnicity for each case study site.

Analyses began with the results of the K-means cluster analysis regarding students' levels of cultural capital that produced a three cluster solution, with Cluster 2 having the least amounts of cultural capital, Cluster 3 having the largest amounts of cultural capital and Cluster 1 sharing similarities with both Clusters 2 and 3 on different measures of cultural capital. When student responses were grouped according to cluster membership, the Cluster 1 students were consistently the least satisfied. This trend was far more pronounced at School B than at School A, but nevertheless, it was present at both schools. It was speculated that Cluster 1 students' dissatisfaction may at least partially stem from a feeling that their interests in more technical, practical matters in architecture are not being addressed by their educations.

Further examination of cluster responses by gender found a differentiation between the males and females of Cluster 1 at School A but not at School B. School A Cluster 1 males had a clear pattern of responding more unfavorably than their female counterparts. At School B, both genders of Cluster 1 were similarly dissatisfied. To reiterate, these findings need to be framed within the context of both schools, in that overall School A students responded much more favorably than School B students; in this instance, the Cluster 1 males at School A who were the most dissatisfied at their school, had responses that were comparable to the generally most satisfied group at School B, the Cluster 3 males.

Program type analyses found that School A had particular problems with social dynamics within the Master of Architecture program with the 2Gs discussing a lack of camaraderie and connection between them and the 3Gs. This sentiment was expressed by the 2Gs primarily in interviews and open-ended comments of the survey; only two items in the quantitative analyses of the survey indicated they had experienced difficulties with social dynamics. Even though the School A 2Gs were overall positive in their survey

responses, the 3Gs responded the most favorably of all three groups. The UGs at both schools were more dissatisfied than the graduate students, specifically Cluster 1 UGs, although the difference was more pronounced at School B than it was at School A.

Because of small sample sizes and large variation within groups, interpretations of analyses by Race and Ethnicity were most limited in contributing to an understanding of the dynamics at each school. Nevertheless, when students were grouped by cluster within race and ethnicity, again it was specific subgroups of Cluster 1 who responded the most unfavorably: International students at School A and white students at School B.

All analyses indicate that particular subgroups of Cluster 1 at both schools reported more dissatisfaction with their educational experiences than either Clusters 2 or 3. Even though this pattern is more striking at School B, it is present at both schools, suggesting that it is not school-specific but rather indicative of a conflict between specific students of Cluster 1 and their educations. This provides support for the importance of considering a more nuanced definition of student backgrounds beyond a simple dichotomy of "high" vs. "low" cultural capital in architectural education research.

There were no prior hypotheses regarding this group of students in the research design phase, as they were not accounted for by the theoretical framework as the Cluster 2 and Cluster 3 students were. In simplest terms, Bourdieuian inspired theories of social reproduction in higher education are generally framed as a dichotomy of high versus low cultural capital, with the proposition that high levels of cultural capital work to a student's advantage, especially in education (e.g., DiMaggio, 1982; Dumais, 2002). In the present research Cluster 1 emerged as an unexpected third group, proving to be the least satisfied and who can be described in terms of both high and low levels of cultural capital, having higher levels of parental education and lower levels of cultural participation.

It was not anticipated that Clusters 2 and 3, representing opposing levels of cultural capital, would have comparable levels of satisfaction with their educations. Referring to social reproduction theory in higher education (Bourdieu, 1977a), it was expected that those students with more financial and cultural resources, i.e., Cluster 3, would be more adept at "playing the game" in architectural education, resulting in higher levels of satisfaction compared to the less privileged students, i.e., Cluster 2. However,

Stevens (1998) has suggested that the students lacking in cultural capital simply "self-select out" and never even apply to an architecture program. This sentiment is supported by the low representation of Cluster 2 students at School A, but not at School B in which Cluster 2 students constitute over 40% of the sample in this study[73].

The following chapter will conclude the analysis of this research by developing the major themes that have emerged thus far. Furthermore, it will outline the limitations of this research as well as offer recommendations for the system of architectural education to address the issues motivating this work, namely a lack of diversity in the discipline, in terms of not only race and ethnicity, gender, and class, but also values and interests.

[73] Chapter 4 addressed the differences in organizational habiti between these two schools of architecture, with School A described as a prestigious, highly regarded, selective school and School B as a less selective public university. Previous research has shown positive correlations between a student's financial privilege and the prestige of the university s/he attends (Golden, 2006; Schmidt, 2007). Although it was not explicitly addressed in this research, it is likely these differences in organizational habiti between the two case study sites at least in part account for the differences in representation of Cluster 2 students.

Chapter 10

Conclusions

Introduction

Throughout this dissertation, the dynamics of two case study architecture schools have been examined through a Bourdieuian lens (Bourdieu, 1977a; McDonough, 1997; Stevens, 1998), considering how students' levels of cultural capital and the organizational habitus of each site, which includes issues of the hidden curriculum, shape a student's socialization in architectural education. Although these two factors of cultural capital and organizational habitus have been of primary concern in this research, other characteristics that define students, such as gender, program type membership, race and ethnicity, have proven to be important considerations as well in documenting architecture students' experiences. This final chapter will expand upon the key findings of the previous chapter by specifically addressing the research question originally posed but also will consider the role of gender, program type, race and ethnicity where appropriate, to offer further interpretations of this research. Additionally, the limitations of this study will be discussed and recommendations to the system of architectural education will be outlined.

Discussion of Students' Cultural Capital

In cultural reproduction theory (e.g., Bourdieu, 1977), cultural capital is conceptualized as a resource that is employed and further invested for future gains in all matters of life, such as higher education, careers or social networks; those with abundant amounts of this resource from childhood are at an advantage compared to those who have accumulated little cultural capital in their upbringing. In this research two groups of students, one which held relatively high amounts of cultural capital (Cluster 3) and one with relatively low amounts of cultural capital (Cluster 2), were identified through cluster analysis. A major finding of this study does not appear to provide support for cultural reproduction theory, in that the Cluster 2 students fared almost as well as the Cluster 3

students in terms of satisfaction and having positive educational experiences. These findings suggest two possibilities: (1) This sample of Cluster 2 students does not account for the students of a similarly disadvantaged background who may have "self-selected out" and/or (2) Cultural reproduction theory may not be the most applicable framework to discuss these results, but rather perhaps *Cultural mobility theory* (DiMaggio, 1982) might be of more utility to interpret these findings. These two possibilities will be fully discussed below.

"Self-Select Out"

Stevens' work (1998) supports the first possibility that disadvantaged students are less likely to even consider architecture as a viable option of study in higher education. He suggested one of the reasons why architecture schools are so effective at "favoring the privileged" is that students from disadvantaged backgrounds "self-select themselves out of the system by simply saying to themselves that they have no chance of success" (189). This is similar to the concept of *bounded rationality*, which McDonough (1997) employed in her research to address the question *Who goes to college where*? In simplest terms, bounded rationality is a construct originating from the field of organizational studies to understand how people make decisions, specifically considering how they limit the number of total possible choices available to them (March & Simon, 1958). Using McDonough's example of college selection, high school seniors who are planning to attend college must somehow reduce the total possible choices of over 3000 colleges to a manageable number to which they will apply. She conceptualized their habiti as guiding the answers to such questions as *Where would I be most comfortable at college*, *What am I capable of in college*, *Where are my friends going to college, What do my parents think I should do*, etc, leading them to consider only particular schools as realistic options to them. She found clear, compelling evidence of school selection differentiation for the students sampled based on their SES, in that those from a higher SES restricted their school choices to selective, usually private universities and those from a lower SES only considered local state-system schools and community colleges.

In a similar vein, Stevens (1998) found a connection between college students' backgrounds and their chosen course of study. Stevens was specifically interested in

identifying a pattern between students' backgrounds and their choice of major, speculating that those with higher cultural capital would be found in greater proportions in those fields known as "talent subjects" (Bourdieu, 1996) such as music and visual arts, in addition to architecture. Citing quantitative data from the University of Sydney, 1991-1992 on rates of private high school attendance and courses of study chosen in college, Stevens found that the "talent subjects" did indeed have a disproportionate number of students who had attended a private high school compared to those disciplines which would require little to no cultural capital (in Stevens' estimation), e.g., engineering, dentistry and nursing. This dissertation research also found similarly high rates of private school attendance with both case study sites' samples of architecture students, approximately 20%, compared to the national private school attendance rate of 6.7%[74]. Unfortunately, these data on rates of private high school attendance for the larger student populations of Schools A and B are not available for comparison[75].

Neither School A nor B administrations had compiled data on attrition rates in their architecture programs, but rather were confident that the rate of students dropping out was "very low." School A's program secretary explained that in her long-term experience with architecture students, once they decide to pursue architecture as a course of study, the overwhelming majority of students finish the program[76]. This may be true for graduate students who have made the decision to pursue architecture, but may not be the case for undergraduate students. Both Schools A and B employ a "gateway" procedure for their undergraduate programs, in that students must apply to officially begin the architecture program in their third year of college. Prior to that, their status is as "Pre-architecture students." It is possible that significant attrition occurs at the point of official entry to the undergraduate architecture program, as the pre-architecture courses offer students an accurate glimpse of life as an architecture student, i.e., heavy emphasis on design studio, verbal presentations to faculty and peers, extensive one-on-one

[74] Source: http://nces.ed.gov/programs/projections/projections2017/tables/table_01.asp?referrer=list (Retrieved 08.11.09)
[75] Both schools' Offices of the Registrar, Admissions and Student Services were contacted, none of which collect information about rates of private high school attendance from their entering students.
[76] In discussions with students at both schools, this was confirmed in that only three students were known to have left School A's program, all of whom transferred to other schools of architecture and only one student left School B's program.

interaction with faculty and peers. A useful data set for future research would include all entering students in pre-architecture courses, documenting their gender, race and levels of cultural capital, to compare with the numbers and demographics of students who actually enter the architecture program.

Cultural MobilityModel

Another possible explanation for why the most financially disadvantaged students in this study were very close in satisfaction with their educational experiences to their advantaged peers can be found in a theory of *cultural mobility* rather than a theory of cultural reproduction. The cultural reproduction model put forth by Bourdieu (1977a) conceptualizes cultural capital as a resource that has the most value and offers the most return on its investment, especially in education, if accumulated early in life; i.e., being raised in an environment that valued cultural resources puts one at a significant advantage compared to the individual who accumulates cultural capital later in life. If as Bourdieu proposed, schools reward students with high cultural capital, then it follows that those students who begin school with higher levels of cultural capital will continuously build upon that capital, always maintaining an advantage over those students with relatively lower levels of cultural capital.

The cultural mobility model (DiMaggio, 1982) shares similarities with the cultural reproduction model, in that it also acknowledges the importance of accumulated cultural capital in social inequalities, but it differs in that it does not differentiate among situations of *when* that capital was acquired. It posits that possession of cultural capital is important regardless of when it was accumulated; therefore, disadvantaged children, given the appropriate opportunities, can accumulate it and experience the benefits of it to the same extent, if not more so than advantaged children do. DiMaggio (1982) found evidence to support both models in his research on cultural capital and school success. He found that female students tended to follow the cultural reproduction model (females with high cultural capital were more likely to receive higher grades than their low cultural capital female counterparts) and male students followed the cultural mobility model (males with high cultural capital were not more likely to receive higher grades than their low cultural capital counterparts).

Following the cultural mobility model in interpreting the somewhat unexpected findings of high levels of satisfaction for Cluster 2, it is possible that these students rapidly accumulated amounts of cultural capital during their architectural education and reaped the benefits by the end of their degree programs. Habitus is not a fixed mechanism, but rather a flexible one, which is ever adapting, shifting and adjusting, guiding one through life (Bourdieu, 1977b). Had these Cluster 2 students been surveyed toward the beginning or even middle of their programs, they may have responded quite differently; given the limitations of the research design, any changes over time for the students will remain unknown. It may be a fruitful avenue for future research to consider a longitudinal research design, collecting quantitative and qualitative data throughout a student's architectural education to tap into the subtleties of changes in attitudes, values, and satisfaction that students experience.

Cluster 1

The discussion thus far on students' levels of cultural capital has focused primarily on Cluster 2, defined as the least advantaged students, and their somewhat unexpected high levels of satisfaction. Cluster 3 students, defined as the most privileged students, responded as expected also with high levels of satisfaction. The remaining group of students, Cluster 1, is not as easily defined as the other two clusters in terms of a dichotomy of low vs. high levels of cultural capital. This group of students had higher levels of parental education, with both parents averaging at least a four year college degree, but had generally lower levels of participation in cultural activities. DiMaggio (1982) concluded that parental education alone is a poor measure of cultural capital, and rather cultural participation and interest are better indicators of a student's level of cultural capital. Following this sentiment, perhaps Cluster 1's higher levels of parental education should not weigh as heavily as their lack of cultural participation in defining them in terms of cultural capital.

If Cluster 1 is then conceptualized as having relatively low amounts of cultural capital, more similar in this regard to Cluster 2 than to Cluster 3, then how should its different pattern of responses in satisfaction and educational experiences be interpreted? Furthermore, the roles of gender, program type, race and ethnicity cannot be ignored as

factors interacting within Cluster 1; at School A, it was clearly the males, not the females who expressed most dissatisfaction, but at School B, both genders were equally dissatisfied. At School A, the International students and UGs within this cluster had the most unfavorable responses whereas at School B, it was the white students and UGs. There is no clear "map" to follow and predict how these variables will interact with students' habiti, as different dynamics emerged at each case study site; however, it is important to recognize the complexities of these interacting variables to understand that Cluster 1 is not a homogeneous group in this research.

Previous empirical research cannot offer much guidance for interpretation of Cluster 1, as none of the sociology of education literature reviewed for this dissertation included a comparable group to Cluster 1 in their research; SES and cultural capital were always defined in terms of "high" vs. "low." As there are no known precedent studies for reference, speculations on explaining the difference between the particularly dissatisfied groups within Cluster 1 at each school and those of its fellow students will rely on weaving together the threads from their survey responses, interviews and faculty interviews.

Perhaps the discontent expressed by the most dissatisfied members of Cluster 1 can best be described as a clash in values with their programs of architectural education. There was evidence from their survey responses to questions of their *Ideal Curriculum* to support the notion that they are more interested in the broader aspects of social engagement in architecture rather than the historical, theoretical or philosophical ones. At both schools, this group of students desired more emphasis on aspects of *Professional practice* and *Environmentally responsible design* when compared to Clusters 2 and 3. These findings are most compelling when understood within the context of the value system of architectural education.

Values in Architectural Education

There is a wealth of literature on the shortcomings of architectural education, with much of the criticism focused on the lack of practicality infused in design studio as well as a privileging of the aesthetic over both the technical and social in design (e.g., Buchanon, 1989; Crawford, 2000; Crosbie, 1995; Goldhagen, 2003; Leach, 1999;

Monaghan, 2001). Design studio is the heart of the curriculum for arguably all architecture programs, with students spending the majority of their time on studio projects, often at the expense of their other courses (Anthony, 1991; Dutton, 1991; Groat & Ahrentzen, 1996, 1997; Stevens, 1995, 1998). Stevens (1995) proposed there is a "hierarchy of curricular prestige" in that design and theory courses are at the top and environmental science and technical courses are at the bottom (117). If Cluster 1 is understood to have greater interest in those courses at the bottom, then potentially their dissatisfaction emerges from a mismatch between what they value in architectural education and what the system of architectural education values.

Bringing this discussion back to the overarching theoretical framework of Bourdieu (1993), he makes a distinction between producing "art for art's sake" and art for the "mass audience" (51). Those who produce art for art's sake are doing so for themselves and others just like them, namely other artists who also produce art for art's sake. Such a system is one of exclusion, as Bourdieu argues, for the producers to assert their position in the dominant class within the field of cultural production. Relating this to the realm of architectural education, design studio could be conceptualized as an aspect of the curriculum which provides legitimacy for the production of "art for art's sake" or perhaps more appropriately worded "design for design's sake."

In her piece on the role of class background in architectural education, Crawford (2000) draws from Bourdieu and his analysis of Immanuel Kant's aesthetic philosophy to conceptualize the privileging of the aesthetic in architectural education as an "instrument of social domination," by creating a cultural hierarchy with "pure aesthetic" at the top (86). "Pure aesthetic" has little concern or regard for practical matters, such as budget, codes, or feasibility of construction, but rather originates from unbounded creative freedom. Crawford argues that the socialization of students into the discipline of architecture is dependent on their acceptance of this cultural hierarchy, for "the domination of 'pure' aesthetics requires that students, from their first day of architecture school on, rethink, if not discard, every aspect of their aesthetic codes or beliefs" (86). Work in design studio that is produced for quite often a very limited audience of fellow architecture students and architecture faculty, with a specific intention to push boundaries of abstract, conceptual thinking and reasoning with a disproportionate emphasis on form

making, reinforces its purpose to achieve a "pure aesthetic" or "design for design's sake."

In this study, Cluster 1 appeared to be most resistant to the acceptance of this notion of "pure aesthetics" in their educations, but rather conceptualized their educations as preparation for actual practice. Their desire for more emphasis specifically in the areas of *Environmentally responsible design and building* as well as *Professional Practice* is perhaps indicative of their wanting to learn a *profession* which is differentiated from learning a *discipline*.

Discussion of Organizational Habitus

Chapter 4 provided ample support of the differences between School A and School B in terms of organizational habitus, with this concept perhaps best defined by Diamond, Randolph & Spillane (2004) as "a pervasive stream of beliefs, expectations and practices that flow through a school. The organizational habitus is like a current that guides teacher expectations and sense of responsibility in a particular direction" (76). Both quantitative and qualitative evidence was cited in Chapter 4 to describe School A as having relatively greater financial resources, a higher level of prestige and higher expectations on the part of both faculty and students when compared to School B. Issues of the hidden curriculum will also be addressed in this discussion, as they relate to the unique dynamics and atmosphere embedded in each school's organizational habitus. This section will further develop key findings to address the research question *to what extent does each school's organizational habitus shape its students' socialization during their education in architecture*?

Students' Perceived Choice

There is a substantial difference in the perceived level of *choice* between School A and School B students when they made their initial decision to attend their particular university. Students made a *choice* to attend School A (primarily for its academic reputation) in contrast with School B students who made their decision based on affordability and location. The concept of *bounded rationality* in concert with a Bourdieuian perspective may be helpful with interpretation in that it is one's habitus that defines the lens of bounded rationality, which guides such decision making. And so, since the majority of School A students had relatively higher levels of cultural capital

than School B students, it can be argued that they were more likely raised with the expectations that they would attend a "good school." School B students, generally having backgrounds of lower cultural capital, perhaps perceived their options for college as far more limited than School A students. Indeed, their options to study architecture in-state were limited to one school, that of School B. This lack in perceived choice of the School B students may have contributed to shaping their expectations for their educations; if a student at School B believes s/he has only one choice for an architecture school, how much is s/he likely to expect?

Expectations of Faculty and Students

With a remarkable level of consistency, School A faculty used some variation of the phrase "pushing students out of their comfort zone" in their interviews to indicate the high level of expectations they held for their students. Their expectations for superior work from their students is implicitly indicative of their increased sense of responsibility as instructors and likely contributed to a relatively more serious and competitive studio environment than was experienced at School B. Faculty interviews at School B were marked by critical comments of students, implying that the majority of their students were of a lesser caliber than those at more competitive architecture schools. Even when a few faculty spoke highly of particularly exceptional students, these students were described as "self-limiting." In other words, School B faculty perceived limits to their students' capabilities, only able to be pushed so far.

Many students, mostly UG and 3G, from both schools' student interview samples reported that "they had no idea what to expect" when they began their programs. Even though the majority of School A students interviewed said their expectations were either "met" or "exceeded," approximately 30% of them felt that their curriculum was lacking in issues of broad social engagement (e.g., *Environmentally responsible design*), as well as practical and/or technical aspects (e.g., *Computer drafting*). However, they still spoke overall very favorably about their experiences in the program, referencing the strength of the faculty and resources at the school. A larger proportion of School B students, approximately 50%, (mostly UGs) felt their educations were lacking in practical/technical aspects, with several of them assuming that it was just the nature of

architectural education to be more theoretically based: "I really feel like I obtained an education here that I could have got at many other schools." Several of them spoke about the program as something they "had to do" in order to become an architect: "I just kind of took it as I had to be here to get a degree." The differences in the ways in which School A and School B students spoke of their program are indicative of a difference in expectations: although a fair number of students from both schools claimed they did not know what to expect, School B students exhibited especially low expectations by "just wanting a degree."

Although it was not the intention of this research to study instructor or student expectations, they emerged from the interview data to create a potentially powerful interaction operating within the context of each school's organizational habitus. In their ethnographic research on the interaction of teachers' expectations and students' backgrounds in urban elementary schools, Diamond et al. (2004) considered organizational habitus to have a "mediating effect" between teachers' beliefs about students' abilities and their sense of responsibility toward students (93). The majority of the teachers and administrators in the study recognized the economically disadvantaged backgrounds of their student bodies, yet they exhibited a varying amount of responsibility for the students' learning. At one particularly problematic school, the researchers concluded that the teachers "seemed resigned to the fact their students had limited ability and that there was little they could do to insure that students learned" (90).

Of course, the present research is addressing higher not elementary education, and students at the college and graduate school level of education are expected to take responsibility for their learning, unlike an elementary school student. However, there is a parallel to draw between the two studies, in that the ways in which School B faculty spoke of their students' abilities may reflect a similarly lowered sense of responsibility for student learning based on their judgments of School B students' capabilities. In contrast, School A faculty's frequent use of the phrase "pushing students out of their comfort zone" could be interpreted as their increased sense of responsibility for student learning. In both cases these beliefs, expectations and sense of responsibility are all embedded within the context of the organizational habitus of each school with School A being highly selective and School B being much less selective.

Hidden Curriculum

Findings on issues of the hidden curriculum at Schools A and B will be organized according to Groat & Ahrentzen's (1996) identification of three key aspects: (1) studio pedagogy, (2) social dynamics and (3) curricular ideals and expectations. For the first and third aspects, there is a fair amount of overlap in reported experiences between the two samples of students with a few subtle, school-specific differences to note. However, on the issue of social dynamics, the two schools are differentiated with each experiencing its own unique difficulties.

Studio Pedagogy

As referenced earlier in this chapter, design studio exists at the top of the curricular hierarchy in architectural education, usually consuming disproportionate amounts of a student's time, given the number of credit hours assigned to these courses. As School A faculty member Michelle said, "There's no arguing that success in the studio is still viewed as the primo place to succeed." There was a fair amount of overlap in interviews with students from both schools, in that they both raised the subject of not performing well in final studio reviews and attributed it to two primary reasons, which both originate from their perception that they are being subjectively evaluated by instructors: (1) poor verbal skills and (2) poor graphic skills.

Students' Perception of Subjective Evaluation

Underlying these discussions with students regarding their unfavorable experiences in studio reviews was a sense that their *work* was not truly being evaluated, but rather it was their *presentation* (verbal and/or graphic) that took precedence. School B students equally mentioned the importance of graphic and verbal skills in presentations in order to have a successful review, whereas School A students much more frequently mentioned the importance of verbal facility during their interviews. Several School A students shared a similar disappointment as Peter (2G) who said: "At [School A] it's less about the work itself but more about how you talk about it." Even though this issue was raised more frequently by the 2Gs interviewed at School A, Carrie, a 3G, spoke at length about the importance of using particular architectural language, in her words,

"buzzwords," during reviews, as an effective tool in presentations. She offered a fictional, "ridiculous" example of a studio project to explain her point:

> … if you said, 'I wanted to make this [form] look like a caterpillar,' that would sound really stupid. But then if you said something like, 'I'm interested in anthropomorphism and morphology and the modular system of the body and how it translates into form,' they [studio critics] would be like, 'Oh that's great.' But if you just said, 'I like caterpillars, and I think it is cool the way they move and I wanted to translate that into form,' they would be like, 'That's not a valid way of working.' But if you said it in the buzzwords of 'morphology' and 'parametric modeling,' whereas those things might have all been there when you were thinking about caterpillars, and you could actually have had that great idea, but if you didn't say it in the right way, they just won't give you credit for it.

Anecdotal support for Carrie's sentiment comes from a casual conversation I had with a 3G student, who was not a participant, about this dissertation research. She told me about "thesis bingo," a game that students played during thesis reviews the year prior, 2007. A few graduate students made a bingo board with squares filled with architectural jargon and buzzwords, such as those quoted above; students in the audience would play "bingo" during thesis presentations by checking off all the buzzwords they heard from student presenters and reviewers. This anecdotal evidence as well as the interviews with School A students, illustrates the students' perception of their studio system as one which values the ability to use the language of the discipline sometimes more than the work itself.

Social Dynamics

With ample opportunity for extensive peer-to-peer contact and one-on-one contact with faculty for students in the studio system, social dynamics in architectural education are an integral part of studio culture. A number of students interviewed at both schools referred to fellow students as "being like family," having formed very close, dependable relationships in a relatively short amount of time during their educations. When analyses were conducted considering the role of program type, only one group of students expressed dissatisfaction regarding interactions with fellow classmates: School A 2Gs. Specifically, they felt tension with the 3Gs; some perceived faculty favoritism and felt the 3Gs were "the anointed ones."

Initially, when a chi-square analysis was conducted as a 3x3 matrix with program type and cluster for School A, there were no statistically significant findings. However, if we accept cultural capital as being defined primarily by cultural participation rather than parental education, an argument could be made for Clusters 1 and 2 to be collapsed into one category for the purposes of a chi-square analysis. The results were statistically significant for this procedure (p=0.041) and are presented in the table below, with the 2Gs being much more likely than the UGs and 3Gs to belong to Cluster 1 or 2 rather than 3 at School A.

School A	UG	2G	3G
Clusters 1 and 2	22	16	6
Cluster 3	19	3	7
Total	41	19	13

Table 10.1: Distribution by Program type and Cluster at School A

In addition to the difficulties experienced by the 2Gs with the 3Gs, there were other problems mentioned in open-ended survey comments by all program types of School A students; none of these problems emerged at School B. At School A, 10% of students made comments on their survey about problems with competition and other various negative interactions among students. Additionally, 16% of School A students wrote about health issues, such as anxiety and stress stemming from an unbalanced life and too heavy of a workload. These percentages may not seem large, but they are noteworthy given the context of School B, in which none of its students shared such sentiments.

Curricular Ideals and Expectations

Survey questions addressed this third aspect of the hidden curriculum by asking students to evaluate their perceived emphases and their ideal emphases in their curricula. Overall School B students had many more discrepancies between what they experienced in their educations and what they desired. However, there was a fair amount of overlap between the two schools' samples regardless of whether they were grouped by cluster, gender, program type or race and ethnicity; they all agreed upon three of the most lacking aspects in their present curricula, all of which relate to broad issues of social engagement: *Environmentally responsible design*, *Professional Practice*, and *Community design*. This

finding was also supported by students' open-ended comments to *Please describe your program's greatest weaknesses*, in which 32% of School A students and 24% of School B students made reference to a lack of these aspects as well as a lack of specific practical/technical skills (e.g., *Computer drafting*) in their educations.

Students understandably want a balance in their architectural educations, not "100% Theory, 0% Practice" as one School A 2G student wrote in response to the open-ended survey question *Please describe your program's greatest weaknesses*. During an interview with Tom, a UG at School A, he voiced his frustration with the lack of *Professional Practice* emphasis in his education and believed that a complete omission of the subject suggested to him that the "school is suspicious of the professional side of things." He understood that as part of accreditation requirements, *Professional Practice* must be in the Master of Architecture program curriculum, so it does not have to be offered to undergraduates. Even with this knowledge, Tom still interpreted this absence of *Professional practice* as a message to students that it is not something the school values.

Limitations of the Study

In selecting a case study strategy, employing both quantitative and qualitative tactics, this research sought to produce a comprehensive evaluation of two schools of architecture. Nevertheless, every research strategy has its limitations. There were three key limitations specific to this study, that ideally future research could address: (1) This research provided a "snapshot" at one particular point in time, unable to track changes over time as a longitudinal design could, (2) It would have been desirable to conduct MANOVAs to quantitatively document the *interaction* of cluster, gender, program type, race and ethnicity, but small sample size was prohibitive for such analyses, and (3) Each case study site was only representative of a particular type of university, i.e., "a public ivy" and a less selective public university.

Avenues for Future Research

This research laid the foundation to understand the complex interactions of students' cultural capital, gender, program type, race and ethnicity with their particular architectural schools' organizational habiti. Future research could use a similar case

study research strategy but collect a larger sample size in order to employ multivariate analyses to document the interaction of these variables and to identify which the extent to which each was influential in shaping students' socialization in architectural education. Also, different case study site selections that are representative of other types of universities with various missions, would make for a worthwhile contribution to build upon this research. Another option for future research would be to specifically employ ethnographic research tactics in data collection to understand more precisely the qualitative experiences of the particular student groups identified in this research. Finally, in an effort to more comprehensively address the experiences of racial and ethnic minority students in architecture school, case study sites could be selected based on a criterion of having larger proportions of these students in its populations.

Implications of the Study

This dissertation built upon work of past research and writings on architectural education, most prominently Stevens (1998) and Groat & Ahrentzen (1996), with a goal to raise awareness and recommend new directions for the future of architectural education. The present research found clear evidence that the habitus of both students and the schools in which they study matter in shaping students' experiences in architectural education. In essence, a student's habitus (as defined by his/her background, worldview, ascribed characteristics, value system and expectations) is in constant interplay with the habitus of their selected architecture program, which has its corresponding worldview, value system and expectations. In addition, students also have other defining characteristics such as gender, program type, race and ethnicity, which inevitably shape their educational experiences as well. Considering all of these factors at play, it is understandable that some students will quite readily feel a match between themselves and their architecture program and for other students, it will be a more difficult process to find common ground between themselves and their program.

Stevens (1998) primarily considered the role of cultural capital in architectural education and Groat & Ahrentzen (1996) concentrated their efforts on identifying gender and racial differences, whereas this dissertation research attempted to address all of these factors in one cohesive analysis. At the heart of this matter is questioning what

architectural education has to offer to attract and retain students of a diverse background in terms of class, gender, race and ethnicity, which inherently include a variety of interests and values? The following three primary implications of this research are all motivated to some extent by this question. They are very similar to the recommendations of Groat & Ahrentzen (1996), indicating architectural education has yet to address the key issues that past research has identified.

Implication 1: Curriculum Design

Although there were differences in degree of desired emphasis among various groups of students, all students from both schools agreed on three aspects that were most lacking in their educations: *Environmentally responsible design, Professional Practice* and *Community Design Work*. Students clearly valued *Design studio* in their curriculum, as evidenced by their survey ratings, but also expressed their belief that such larger issues of social engagement could and should be integrated into design studio problems.

It could be argued that substantive integration of *Environmentally responsible design* into studio projects presents an especially unique and timely opportunity for architectural education to engage students in the larger pressing issues of climate change. David Orr (1994) recommends that architectural education could draw from compelling combinations of diverse fields such as ecology, economics and ethics, to ask questions of "How much energy will a building consume over its lifetime?" and "Can buildings and their surrounding landscape be designed to generate a positive cash flow?" (114) Furthermore, Orr makes a plea for architectural education to expose the ethical costs often unconsidered in the design process by asking them to consider:

> What ecological and human costs do various materials impose where and on whom? What in our ethical theories justifies the use of materials that degrade ecosystems, jeopardize other species, or risk human lives and health? Where those costs are deemed unavoidable to accomplish a larger good, how can we balance ethical accounts? (115)

The AIA Committee on the Environment (COTE) prepared a report in 2006, titled *Ecology and Design: Ecological Literacy in Architectural Education*, in which they concluded that one hindrance to implementing the kind of "radical overhaul of education that David Orr and others advocate" are present NAAB standards, which do not

emphasize environmental issues(4).[77] Furthermore, they argue that an education in ecological literacy depends on interdisciplinary breadth in a curriculum, which they believe the present structure of architectural education cannot accommodate. In response to these impediments, this dissertation argues that these issues of ecological literacy need to be an *integral* part of the design studio. One possibility would be for schools to offer an *Ecological Ethics* option studio, at the very least to demonstrate their awareness and concern of the broader issues at work involving the discipline of architecture. Another option studio could be *Ecological Technology*, in which the focus would be on building systems that address concerns of environmental impact. In other words, I am not naively suggesting that an architecture program shift its primary curricular focus away from *Design studio* to issues of sustainability, but rather to explore meaningful ways that it can broaden its relatively narrow focus within design studio. This sentiment leads directly into the following implication of attracting and retaining a diverse student population.

Implication 2: Diverse Student Populations

There has been a fair amount of attention devoted to *identifying* the issue of a lack of diversity in the architectural profession (e.g., Anthony, 2002) and even some well-intentioned initiatives to attract racial and ethnic minority youths to the discipline (e.g., Charter High School of Architecture & Design in Philadelphia), but yet the numbers of women and racial and ethnic minorities practicing in the profession are still grim. As Murdoch (2009) documented, the percentage of licensed African-Americans in the discipline today at 1.7% has barely budged since National Urban League president Whitney Young announced a call for action at the 1968 AIA convention[78]. The numbers of women in architecture school have increased dramatically over the years (approximately 50% in the samples from these two case study sites), but still only 20% of all practicing architects today are women.[79]

---

[77] Source: http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias074624.pdf (Retrieved: 08.30.10)
[78] This percentage of 1.7% differs from the one cited in Chapter 1 of 2.5% African-Americans in the profession. Chapter 1 referenced the Bureau of Labor Statistics, which included all individuals who claimed their occupation to be "Architect." Murdoch (2009) is referring only to AIA licensed architects.
[79] Source: http://aia.org/aiaucmp/groups/aia/documents/pdf/aias077643.pdf (Retrieved 08.28.10)

Various explanations have been offered regarding the particular barriers to women and racial and ethnic minorities in entering the discipline of architecture, including lack of visibility, lack of support, and lack of sensitivity to particular needs (De Graft-Johnson, Manley & Greed, 2005; McCann, 2007). This research poses a question for the discipline to ask itself: *What does it have to offer to people of a diverse background*? Kevin, a School A faculty member, prompted a discussion on this topic in his interview, recognizing that the select aspects that architectural education generally privileges (i.e., theory and design) may not be of interest to a broad spectrum of people. Building upon his sentiment, architectural education could widen its scope to validate other worthy aspects of its curriculum, to potentially present itself as an attractive possibility to people of various backgrounds and interests. Even beyond curricular reform, it is more the niche that architecture has carved out for itself that needs reform, as more concerned with being arbiters of taste rather than a professional body who holds valuable expertise in pressing issues such as environmentally sustainable design, housing and infrastructure[80].

Implication 3: Self-assessment for Each School

This research demonstrated the importance of the factors of students' cultural capital, gender, race and ethnicity, and highlighted how they interacted differently at two case study sites with two different organizational habiti. The recommendation to other architecture schools is to complete a self-assessment of the dynamics particular to their program, identifying the larger context of organizational habitus in which such interactions play out. There cannot be a "one size fits all" recommendation for architectural education from this research, for it demonstrated the importance of considering and understanding particular student populations; furthermore, it highlighted the need to investigate the extent to which students' values and interests mesh with those

[80] At least three references are pertinent to support this statement. Brain (1991) followed the rise of the architectural profession throughout the 19th century, arguing that the profession chose to align itself with "aesthetics" rather than technology, thereby weakening its importance as a profession. As a result, it allowed other disciplines (e.g., engineers) to take control of and responsibility for issues that were once the domain of architects. A different line of thinking comes from Fisher (2004) who argued for architects to learn lessons from the past to move the profession in a direction of increasing relevancy to address timely social and environmental concerns. Lastly, Boyer & Mitgang (1996) also raised similar concerns regarding the relevancy of the profession.

of their education. Problematic experiences that emerged at School A, such as competitive and negative peer-to-peer dynamics, were completely absent at School B, in which more difficulties seemed to arise from student-to-faculty and student-to-administration dynamics. It is the responsibility of each architecture school to identify the problematic issues that are unique to their program; this research offers a set of tools for them to do so.

Conclusion

Employing a case study strategy, this research quantitatively and qualitatively documented the experiences of graduating architecture students within two particular U.S. public universities, using a Bourdieuian lens of analysis. It found the roles of students' cultural capital and the organizational habitus of the schools, as well as students' gender, program type, race and ethnicity to matter in shaping students' experiences and satisfaction throughout their educations. Both students and schools hold his/her or their own particular values, which are representative of his/her individual habitus or organizational habitus. This research urges schools of architecture (i.e., faculty and administration) to know its students, to understand their students' values and to identify where points of conflict may lie between their mission as an architecture school and their students' desires and expectations as architecture students. This research does not advocate for architecture schools to employ a simple approach of catering to their students' every whim and desire; rather it advocates for schools to recognize the differences between their intentions as an architecture program and their students' values, ultimately leading to ask *how do we address such differences?* If students' interests and values in architectural education are at least recognized and understood and therefore validated , then faculty and administration can make an effort to engage *all* students on a common meeting ground.

APPENDIX A

Email requests to faculty and students

Hello architecture faculty,
I am a doctoral candidate in architecture at the University of Michigan studying socialization in architectural education for my dissertation research. I am looking to interview a sample of architecture studio faculty for this research, regarding your views and experiences on teaching in this discipline. This interview would be scheduled at your convenience and will last between 30-45 minutes. I am very much looking forward to talking with as many of you as possible. Your input is extremely valuable to me and I thank you in advance for your consideration of participating in this research.

Hello architecture students,
This email request is for GRADUATING ARCHITECTURE students only (both undergrad and grad) - apologies for the mass email to all architecture students.

I am a doctoral candidate in architecture at the University of Michigan studying socialization in architectural education for my dissertation research. I will be visiting studios and classes the week of March 3rd and will be requesting your participation in my research. Participation involves completing a written survey regarding your educational experiences. I am also looking to interview a small sample of students, regarding your educational experiences. This interview would be scheduled at your convenience and will only last between 20-40 minutes. If you would be willing to schedule an interview, please respond to this email. Your input is extremely valuable to me as well as to the administration, and I thank you in advance for your consideration of participating in this research.

APPENDIX B

Survey instrument

Architecture Program EXIT SURVEY

Survey of Architectural Education

I am conducting a study of graduating architecture students' experiences of their formal education for my dissertation research and am requesting your participation. Your responses are very important, and will help us to better understand and improve our programs of architecture. Participation involves completing the following survey that will take no longer than 30 minutes.

Participation in this study is completely anonymous--no participant names or other identifying information will be collected. Your responses will be held in strict confidence. There are no risks involved in participating in this research. The results of the survey will only be reported on an aggregate level to insure anonymity for all respondents. Your name is not requested, nor will it appear on any material connected with the data. Completion of this survey is entirely voluntary, and you may choose to withdraw at any time. You may choose to skip any questions in this survey. Your completion of this form acknowledges your permission to participate in this project.

If you have any questions or concerns regarding this study, please contact Jennifer Chamberlin, jcham@umich.edu, 734-255-1514. Should you have questions regarding your rights as a research participant, please contact the Institutional Review Board, 540 E. Liberty Street, Suite 202, Ann Arbor, MI 48104-2210, email: irbhsbs@umich.edu, regarding IRB study number HUM00018433.

1 Year born:_____

2 Gender: (circle one) M F

General Information

3 If U.S. citizen, what is your race/ethnicity?

___African-American/Black ___American Indian

___Latino/Chicano/Hispanic ___Asian-American

___White/Caucasian ___Other_____

4 If not U.S. citizen, what is your country of origin?

_____

5 Mother's highest level of education attained:

____Some grammar and/or high school

____High school graduate

____Some college

____College degree

____Some graduate school

____Graduate degree

6 Mother's occupation (if retired, please indicate father's previous primary occupation):

_____

7 Father's highest level of education attained:

____Some grammar and/or high school

____High school graduate

____Some college

____College degree

____Some graduate school

____Graduate degree

8 Father's occupation (if retired, please indicate father's previous primary occupation):

_____

9 How many children do you have that are dependents? ____0 ____1 or more

10 Your marital status

____Single ____Married / Living with a partner

11 During the course of your childhood (birth-18), how many times were you signed up for the following classes/lesson programs outside of school?

Response Choices:
5 or more
3-4 times
1-2 times
Never

Art (e.g., drawing, painting, sculpture, printmaking, filmmaking, photography)?

Music (voice or instrument)?

Dance?

Creative writing?

12 During the course of your childhood (birth-18), how frequently do you recall the following activities happening?

Response Choices:
Quite Often
Only Occasionally
Somewhat Frequently
Not at all

Your family listening to classical music in your home?

Borrowing books from the public library?

Attending art museums/galleries?

Attending plays/performances?

Being encouraged by your parents to read books outside of school?

Previous Education

13a Have you been awarded an undergraduate degree?

____Y ____N

b If yes, what college/university?

_____

c City, State_____

14 Was the high school that awarded your degree a:

____Public School?

____Religiously affiliated Private School?

____Nonsectarian Private School?

15 To what extent have you made use of the following means of financial support during your present education?

Response Choices:
Not at all
Minimally
Somewhat
Very much

Loans?
Grants/scholarships/Graduate assistantship?
Work-study/Work outside of school?
Parental?
Personal Savings?
Other?

16a If you have worked outside of school during the school year, while pursuing your present degree, for how many years of your degree program did you work? (for example if you worked 2 out of 4 years, please respond "2/4")
___/___

b Excluding summers, how many hours on average did you work per week?
Response Choices:
<10 hours 10-20 hours >20hours

The Curriculum and the Program

1 Which architecture program are you currently enrolled in?

____Undergraduate (B.S. in Architecture)
____Graduate (M.Arch, 2 year)
____Graduate (M.Arch, 3.5 year)

2 What initially attracted you to this university? (select 3 maximum):

____Academic reputation
____Campus atmosphere (academic and social)
____Employment prospects (e.g., internship and networking opportunities)
____Spouse/family considerations
____Expected time to degree shorter compared to other programs
____Cost (as instate resident)
____Financial aid package (e.g., federal loans, grants)

____Scholarship package from the university
____Location of university in this city/state
____Desire to work with particular faculty
____Knowledge of and interest in current faculty work/research
____Resources at the college of architecture (e.g.,computer labs, woodshop, facilities, other resources)
____Other, please describe: _____

3 To what degree do you think each of the following is emphasized in your program?

Response Choices:
Strongly emphasized
Somewhat emphasized
Minimally emphasized
Not at all emphasized

Design studio?
Urban design and analysis?
Architectural history?
Historic preservation?
Theory and criticism?
Structures, technology, and environmental systems?
Professional practice and management?
Drawing and graphic presentation skills?
Computer drafting and modeling skills?
Socio-cultural and/or psychological concerns?
Programming?
Environmentally responsible design and building?
Collaboration of students on design projects?
Community design work?

4 If you were able to reorganize the curriculum to be compatible with your ideas of quality architectural education, what would you emphasize in your ideal curriculum?

Response Choices:
Essential
Somewhat important
Minimally important
Not at all

Design studio?
Urban design and analysis?
Architectural history?
Historic preservation?
Theory and criticism?
Structures, technology, and environmental systems?
Professional practice and management?
Drawing and graphic presentation skills?
Computer drafting and modeling skills?
Socio-cultural and/or psychological concerns?
Programming?

Environmentally responsible design and building?
Collaboration of students on design projects?
Community design work?

5 To what extent do the following statements reflect your experiences in design studios at this university?

Response Choices:
Quite often
Somewhat frequently
Only occassionally
Not at all

Design projects emphasize issues of social relevance?
Design projects relate to disadvantaged people and/or to different cultures?
Students work closely with clients, prospective clients and/or users?
An emphasis is placed on artistic expression and/or formal design?
An emphasis is placed on decision making skills and/or rationale for design?
Instructors accept diverse ways of thinking about problem or design project?
Instructors encourage students' independent thinking?/
Design projects emphasize environmentally responsible building and design?
Design projects emphasize the techniques/process of building production?

6 Based on your experiences in your program, how important are the following in determining an architecture student's success in school?

Response Choices:
Essential
Somewhat important
Minimally important
Not at all

Amount of time devoted to studio?
Verbal presentation skills?
Gender?
Graphic presentation skills?
Race?
Socioeconomic status?
Innate design talent?

7 Indicate the extent to which each of the following was problematic for you in your formal architectural education at this university:

Response Choices:
Not at all
Only occasionally
Somewhat frequently
Quite often

Financial Problems?
Conflict between school and family responsibilities?
Lack of encouragement from instructors?
Lack of peer support or collegiality among students?
Lack of support from student services administrative staff?
Lack of academic advising/guidance from faculty?
Lack of positive involvement/ communication with program director?
Lack of positive interaction/contact with dean?
Aggressive, competitive attitudes of students in architecture?
Discriminatory attitudes or actions towards women in the program?
Discriminatory attitudes or actions towards minorities and/or international students in the program?
Actions of a particular instructor that are discouraging or discriminatory?
Lack of confidence in your design and/or academic abilities?
Little or no flexibility in choice of course offerings?
Limited job opportunities in architecture?
Feeling that the rewards of an architectural degree are not worth the efforts of getting it?

8 Do you agree or disagree with the following statements regarding your own experience in this architecture program?

Response Choices:
Strongly Disagree
Somewhat Disagree
Somewhat Agree
Strongly Agree

Architecture students are relatively isolated from each other?
There is considerable unity and academic sharing?
The program is supportive of racial and ethnic diversity?
The school provides a conducive environment for new ideas and open discussion?
Critiques of student work by faculty and design juries are generally respectful and constructive?

Your goals and motivations

1 How important is each of the following factors in driving you to pursue an education in architecture?

Response Choices:
Essential
Somewhat important
Minimally important
Not at all

Fame?
High Income potential?
Intellectual challenge?
Opportunity to be creative?
Job security?
Ability to be a licensed architect?
Independence?
Status or prestige?
Participation in community action?
Wide availability of jobs?
Opportunity to solve important problems or work for social change?
Opportunity to create new knowledge or to do research?
Opportunity to help people?

2 How appealing are each of the following work scenarios after your education in architecture is completed?

Response Choices:
Very Appealing
Somewhat Appealing
Not Very Appealing
Not at all

To work alone in private architectural practice?
To work in a small firm's private architectural practice?
To work in a medium to large firm's private architectural practice?
To work in an architectural and engineering firm?
To work in an interior design firm?
To work in a landscape architecture firm?
To have an architectural position in a corporation?
To work for a government agency, e.g., housing agency?
To work for an advocacy group or non-profit firm?
To work in a private consulting practice or research?
To teach architecture classes at the college level?
To work in construction/contracting?
To work in a design build firm?
To work as a real estate developer?
To explore other fields, disciplines, please specify:_____

Career and Education Satisfaction

1 To what extent are you satisfied with the following:

Response Choices:
Very Satisfied
Somewhat Satisfied
Somewhat Dissatisfied
Very Dissatisfied

Your choice of architecture as a major or educational choice?
Your choice of architecture as a career?
Your choice of architecture at this university?
You are receiving/have received a well-rounded liberal arts education?

2 To what extent are you satisfied with the quality of faculty in your program, with regards to the following areas?

Response Choices:
Very Satisfied
Somewhat Satisfied
Somewhat Dissatisfied
Very Dissatisfied

Currency in field?
Relevancy to the profession?
Overall teaching ability?
Ability to relate to students?
Ability to provide inspiration?
Approachability?

3 If you had it to do over, would you still decide to attend this university's architecture program?

Definitely Yes Definitely No

1 2 3 4 5

4 Regardless of potential financial benefits, do you believe that your education at this university has improved the quality of your life?

Definitely Yes Definitely No

1 2 3 4 5

5 How well do you believe your education at this university is preparing you for your long-term career goals?

Definitely Yes Definitely No

1 2 3 4 5

6 Please list three faculty members (whose courses you have taken) whom you regard most highly.

_____

_____

_____

7 Please describe your program's greatest strengths.

_____
_____

_____
_____

8 Please describe your program's greatest weaknesses.

_____
_____

_____
_____

9 Any other comments and/or questions?

_____
_____

_____
_____

_____
_____

_____
_____

Thank you very much for your time and participation in this project!

REFERENCES

Alexander, K.L., Entwisle, D.R., & Thompson, M.S. (1987). School performance, status relations, and the structure of sentiment: Bringing the teacher back in. *American Sociological Review*, 52, 665-682.

Anthony, K.H. (1991). *Design juries on trial: The renaissance of the design studio.* New York: Van Nostrand Reinhold.

Anthony, K.H. (2002). Designing for diversity: Implications for architectural education in the twenty-first century. *Journal of Architectural Education*, 55, 4, 257-267.

Aschaffenburg, K. & Maas, I. (1997). Cultural and educational careers: The dynamics of social reproduction. *American Sociological Review*, 62, 573-587.

Blau, J.R. (1984). *Architects and firms: A sociological perspective on architectural practice*. Cambridge:MIT Press.

Bosworth, F.H. & Jones, R.C. (1932). *A study of architecture schools*. New York: Charles Scribner's Sons.

Boyer, E.L. & Mitgang, L.D. (1996). *Building community: A new future for architecture education and practice.* Princeton: Carnegie Foundation.

Bourdieu, P. (1977a). "Cultural reproduction and social reproduction,"p.487-511, in *Power and ideology in education*, ed. by J. Karabel and A.H. Halsey. New York: Oxford University Press.

Bourdieu, P. (1977b). [translated R. Nice] Outline of a theory of practice. Cambridge, Great Britain: University Press.

Bourdieu, P. (1984). [translated R. Nice] *Distinction.* Cambridge: Harvard University Press.

Bourdieu, P. (1993). *The field of cultural production: Essays on art and literature*, ed. by R. Johnson. New York: Columbia University Press.

Bourdieu, P. (1996). [translated L. Clough] *The state nobility.* Cambridge: Polity Press.

Brain, D. (1991). Practical knowledge and professional control: The professionalization of architecture in the United States. *Sociological Forum*, 6, 2, 239-268.

Buchanon, P. (1989). What is wrong with architectural education? Almost everything. *Architecture Review*, July, 24-26.

Clarke, D. (1994). *The architecture of alienation: The political economy of professional education*. New Brunswick: Transaction Publishers.

Coombs, R.H. (1978). Mastering medicine: Professional socialization in medical school. New York: The Free Press.

Crawford, M. (2000). An education in distinction: On class in the class. *Harvard Design Magazine*, 11, 85-87.

Crosbie, M. (1995). The schools: How they're failing the profession (and what we can do about it). *Progressive Architecture*, 76, 9, 47-49.

Cuff, D. (1991). *Architecture: The story of practice.* Cambridge: MIT Press.

De Graft-Johnson, A., Manley, S. & Greed, C. (2005). Diversity or the lack of it in the architectural profession. *Construction Management and Economics*, 23, 1035-1043.
Diamond, J.B., Randolph, A, & Spillane, J.P. (2004). Teachers' expectations and sense of responsibility for student learning: The importance of race, class and organizational habitus. *Anthropology and Education Quarterly*, 35, 1, 75-98.
DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of U.S. high school students. *American Sociological Review*, 47, 189-201.
Dixon, J.M. (1994). A white gentleman's profession. *Progressive Architecture*, Nov, 55-61.
Dobbin, F. (2008). The poverty of organizational theory: Comment on: "Bourdieu and organizational analysis." *Theory and Society*, 37, 53-63.
Dumais, S. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of Education*, 75, 44-68.
Dumais, S. (2006). Elementary school students' extracurricular activities: The effects of participation on achievement and teachers' evaluations. *Sociological Spectrum*, 26, 117-147.
Dutton, T. (Ed.). (1991). *Voices in architectural education*. New York: Bergin & Garvey.
Farkas, G., Grobe, R., Sheehan, D., & Shuan, Y. (1990). Cultural resources and school success: Gender, ethnicity, and poverty groups within an urban school district. *American Sociological Review*, 55, 127-142.
Fisher, T. (2004). Architects behaving badly. *Harvard Design Magazine*, 21, 1-3.
Fowler, B. & Wilson, F. (2004). Women architects and their discontents. *Sociology*, 38, 1, 101-118.
Getzels, J.W. & Csikszentmihalyi, M. (1976). *The creative vision: A longitudinal study of problem finding in art.* New York: John Wiley & Sons.
Goldhagen, S. (2003). Our degraded public realm: The multiple failures of architecture education. *The Chronicle of Higher Education*, 49, 18, B7.
Granfield, R. (1991). Making it by faking it: Working-class students in an elite academic environment. *Journal of Contemporary Ethnography*, 20, 3, 331-351.
Groat, L.N. & Ahrentzen, S.A. (1996). Reconceptualizing architectural education for a more diverse future: Perceptions and visions of architectural students. *Journal of Architectural Education*, 49, 3, 166-183.
Groat, L.N. & Ahrentzen, S.B. (1997). Voices for change in architectural education: Seven facets of transformation from the perspectives of women faculty. *Journal of Architectural Education*, 50,4, 271-285.
Groat, L.N. & Wang, D. (2002). *Architectural research methods.* New York: John Wiley & Sons.
Gutman, R. (1988). *Architectural practice: A critical view.* Princeton: Princeton Architectural Press.
Hair, J., Anderson, J. & Tatham, R. (1992). *Multivariate data analysis with readings*. New York: Macmillan.
Hearn, J. (1984). The relative roles of academic, ascribed and socioeconomic characteristics in college destinations. *Sociology of Education*, 57, 1, 22-30.
Hearn, J. (1991). Academic and nonacademic influences on the college destinations of

1980 high school graduates. *Sociology of Education*, 64, 3, 158-171.
Horvat, E.M. & Antonio, A.L. (1999). "Hey, those shoes are out of uniform": African American girls in an elite high school and the importance of habitus. *Anthropology and Education Quaterly*, 30, 3, 317-342.
Hossler, D, Braxton, J, & Coopersmith, G. (1989). The choice stage of student college choice: An integrative review. *Paper presented at the Annual Meeting of the American Educational Research Association*, San Francisco.
Karabel, J. & Astin, A. (1975). Social class, academic ability, and college quality. *Social Forces*, 53, 381-398.
Karabel, J. & Halsey, A.H. (eds.) (1977). *Power and ideology in education*. New York: Oxford University Press.
Karen, D. (2002). Changes in access to higher education in the United States. *Sociology of Education*, 75, 3, 191-210.
Kingston, P.W. & Lewis, L.S. (1990). *The high status track: Studies of elite schools and stratification.* New York: SUNY Press.
Kruskal, J. & Wish, M. (1978). *Multidimensional scaling*. Beverly Hills: Sage.
Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.
Leach, N. (1999). *The anaesthetics of architecture*. Cambridge: MIT Press.
Lewin, T. (2005, May 25). A marriage of unequals: When richer weds poorer, money isn't the only difference. *The New York Times*, p. A1, A18.
Lewis, R.K. (1998). *Architect? A candid guide to the profession*. Cambridge: MIT Press.
MacLeod, J. (1995). *Ain't no making it: Aspirations and attainment in a low-income neighborhood.* Boulder: Westview Press.
March, J. & Simon, H. (1958). *Organizations*. New York: John Wiley.
Marcus, R.D. (1989). Freshman retention rates at U.S. private colleges: Results from aggregated data. *Journal of Economic and Social Measurement*, 15, 37-55.
Margolis, E. (Ed.). (2001). *The hidden curriculum in higher education.* New York: Routledge.
McCann, H. (2007). 0.2%. *Architect*, 96, 3, 62-65.
McDonough, P.M. (1997). *Choosing colleges: How social class and schools structure opportunity*. Albany: SUNY Press.
Moll, R. (1985). *The public ivys: A guide to America's best public undergraduate colleges and universities*. New York: Viking.
Monaghan, P. (2001). The 'insane little bubble of nonreality' that is life for architecture students. *The Chronicle of Higher Education*, 47, 42, A34-A36.
Murdoch, J. (2009). The diversity pipeline. *Architectural Record*, 197, 5, 89.
Orr, D. (1994). *Earth in mind: On education, environment and the human prospect*. Washington, D.C.: Island Press.
Persell, C, Catsambis, S, & Cookson, P. (1992). Differential asset conversion: Class and gendered pathways to selective colleges. *Sociology of Education*, 65, 3, 208-225.
Porter, W.L. & Kilbridge, M. (eds) (1981). *Architecture Education Study*. Sponsored by the Consortium of East Coast Schools of Architecture and the Andrew W. Mellon Foundation. New York: Andrew W. Mellon Foundation.
Purcell, T. & Nasar, J.L. (1992). Experiencing other people's houses: A model of similarities and differences in environmental experience. *Journal of*

Environmental Psychology, 12, 199-211.
Reed-Danahay, D. (2005). *Locating Bourdieu.* Bloomington: Indiana University Press.
Robinson, J. (1990). Between culture & architecture: Architectural reception theory: Implications for education. In, *Proceedings of the 78th Annual Meeting of the Association of Collegiate Schools of Architecture (ACSA),* Washington, D.C., 235-240.
Ruedi, K. (1998a). A commentary on architectural education. *Journal of Architectural Education,* 51, 3, 148-152.
Ruedi, K. (1998b). Curriculum vitae: The architect's cultural capital: Educational practices and financial investments, in J.Hill (ed.), *Occupying architecture: Between the architect and the user*. London: Routledge, 23-37.
Ryan, J.F. (2004). The relationship between institutional expenditures and degree attainment at baccalaureate colleges. *Research in Higher Education*, 45, 2, 97-114.
Schmitt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assessment*, 8, 4, 350-353.
Spreckelmeyer, K.F., Domer, D.E. & Carswell, J.W. (1985). Measuring curricular orientation in architectural education. *Journal of Architecture and Planning Research*, 2, 99-114.
Stevens, G. (1995). Struggle in the studio: A Bourdivin look at architectural pedagogy. *Journal of Architectural Education*, 49, 2, 105-122.
Stevens, G. (1998). *The favored circle*. Cambridge: MIT Press.
Swartz, D. (1997). *Culture and power: The sociology of Pierre Bourdieu.* Chicago: University of Chicago Press.
Willis, P. (1981). *Learning to labor: How working class kids get working class jobs.* New York: Columbia University Press. (Original work published 1977).
Williamson, R.K. (1991). *American architects and the mechanics of fame*. Austin: University of Texas Press.
Wilson, M. & Canter, D. (1990). The development of central concepts during professional education: An example of a multivariate model of the concept of architectural style. *Applied Psychology: An International Review*, 39, 4, 431-455.
Wilson, M. (1996). The socialization of architectural preference. *Journal of Environmental Psychology*, 16, 1, 33-44.
Winston, G.C. (1999). Subsidies, hierarchy and peers: The awkward economics of higher education. *Journal of Economic Perspectives*, 13, 1, 13-36.
Yin, R.K. (1994). *Case study research: Design and methods, 2nd ed.* Thousand Oaks, CA: Sage Publications.