CHOOSING A CAREER IN LANDSCAPE ARCHITECTURE:

DIMENSIONS OF FIT

By

MASON JAY SHAFFER

A thesis submitted in partial fulfillment of
the requirements for the degree of

MASTER OF SCIENCE IN LANDSCAPE ARCHITECTURE

WASHINGTON STATE UNIVERSITY
Department of Horticulture & Landscape Architecture

MAY 2010

To the Faculty of Washington State University:

The members of the Committee appointed to examine the thesis of
MASON JAY SHAFFER find it satisfactory and recommend that it be accepted.

_____

David Wang, Ph.D., Chair

_____

Jolie Kaytes

_____

Virginia Lohr, Ph.D.

CHOOSING A CAREER IN LANDSCAPE ARCHITECTURE:

DIMENSIONS OF FIT

ABSTRACT

by Mason Jay Shaffer
Washington State University
May 2010

Chair: David Wang

The market is demanding more Landscape Architecture (LA) graduates. This puts pressure on stakeholders to fill the demand. Understanding why students choose a major in LA is essential to developing strategies that will encourage more students to enter the growing field. This qualitative research tries to enlighten stakeholders about key variables they need to develop effective strategies by addressing rationale regarding current LA students: (1) who are they, (2) how did they hear about LA, (3) what do they want, (4) when do they want it, (5) how do they want it, and (6) why do they want it? Traditional demographic and psychographic variables are analyzed from the sample of 300+ survey respondents who are currently majoring in LA at 26 different universities in the United States. Based on an integrated theoretical framework of intrinsic motivation, psychographic themes and observations are introduced and defined. This integrated theoretical framework consists of Personality Theory (Kelly, 1955), Self-Determination Theory (Deci and Ryan, 1985), and the Theory of Multiple Intelligences (Gardner, 1983). Four relevant group comparisons are performed considering all demographic and psychographic variables. This

data preparation allows thematic findings to be generated. These findings are that LA students: (1) have abilities that align with design, nature, social interaction, and/or (surprisingly) music, (2) are passionate about the following topics: the environment, influencing people, architecture, design, art, music, and/or making the world a better place, (3) are socially connected, (4) are free spirits, (5) are open-minded about career direction, (6) are NOT in it for the money, and (7) tend to study at an institution near where they are already located.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 Archetype Response: Ricky[1]

Ricky is a 24 year old fifth-year student, who is currently finishing his undergraduate

degree in landscape architecture (LA) at a reputable university in the southern United States.

Why and how did he decide to study LA? What factors were influential in his decision? In

understanding this individual story around the decision to study LA, we may better see that

pieces of the story are not only unique to the individual, they have commonality with others

making parallel decisions.

Ricky was born and raised in a town with a population of about 12,000 residents. His

mother never finished high school and works as a bookkeeper while his father attended bud

did not finish college, and works as a used car dealer. His family made a living on a

combined income of around $80,000 per year. During high school, Ricky enjoyed and

excelled in his Calculus, Spanish and English Composition classes. After graduating high

school in 2004, he attended a local junior college to get some of his general education out of

the way. His plan, after two years, was to transfer to the state university (about 15 miles

away) and major in Civil Engineering, Architecture or Psychology. These plans became

altered because of a meeting with his academic advisor at junior college, who introduced

Ricky to LA. Ricky became **aware** of LA as a consideration for the first time while attending

junior college. After learning more about the use and incorporation of plants in designs, his

---

[1] Ricky is a fictional name used to represent a real story collated from one individual's responses to the administered survey.

interest was sparked when he was told that he could one day "design roads, retail buildings,

and condos." He checked to see if LA was offered at the University of his choosing and

decided that LA was his planned major and career choice. From that point forward, he

desired to pursue his college degree in LA. Important factors in Ricky's decision to study

LA at his university included the university location, department reputation, and positive

influence from his family and friends. Specific people to whom he attributes an influential

part of this decision include his immediate and extended family, his girlfriend, a church

friend, a previous coworker, a family friend (who is an architect), his professors and "others

who had heard that it was a good solid profession."

When asked specifically what was most attractive to him about LA and what is most

motivating to him now, Ricky responded with the following:

> The most attractive part of the major was getting to see plan view stuff as well
> as really good looking drawings. Another piece of the pie was the curriculum
> because it included most of what I liked, wanted to learn, or knew I could
> excel in. I also was very attracted to the idea of having a drawing desk, being
> in a studio, and getting to have a lot of time dedicated to projects. What
> motivates me now to keep learning about the profession is hearing about it
> from others, looking at work of companies online, and seeing different places.
> The motivation level has decreased for me, however, because I do not belong
> to the studio anymore and I am not involved with any projects that are
> happening.

In response to a question about what he considers his passion, Ricky stated:

> My passion, I guess, pertains to architecture and seeing how things work in
> the long run. I enjoy looking at plant material that is unique and getting to see
> people's homes and what's in their back yards. As cliché as it may sound, my
> love for learning is still alive and well. Learning was and is my passion and
> always will be. I can't get enough of theory of planning, site planning, detailed
> plans, and great drawings.

Like most young people, Ricky has optimistic anticipations for his future. Educationally, he "has the feeling to obtain a higher degree of learning in order to have a bigger job outlook." He anticipates being involved in the following areas during his career: design/build, residential design, commercial design, park and recreational design, urban design, land development, natural resource planning and management, and ecological restoration and preservation. Ricky foresees being within a managerial role throughout his career. The extent of his planning and design interests aligns well with the breadth of LA and sheds some light on additional reasons for his study in the discipline. "Landscape architecture was something that I could study for very long amounts of time, as well as apply it in a lot of ways."

1.1.1 LA Industry Strategy: Grow the field

Ricky serves as an archetype of students in LA programs; however, he is not the only archetype of student who majors in and anticipates a career in LA. As such, LA programs at universities, specifically, and through the American Society of Landscape Architects (ASLA), generally, should recognize that a degree in LA is a product that they offer to a segment of potential consumers, undergrad college students. As a product offering, a degree in LA is a "sum total of benefits provided to target" (Kerin and Peterson, 2007). Efforts need to be made to promote the product, to increase awareness and encourage potential consumers to become realized customers: LA students. The satisfaction students have during the undergraduate program determines the long-term commitment and loyalty students will have toward LA; a strong conviction suggests that these LA students will participate in and contribute to the LA economy for their entire adult career.

According to the Bureau of Labor Statistics, "employment of landscape architects is expected to increase by 20 percent during the 2008-18 decade, which is much faster than the average for all occupations" (2010). To meet this demand, LA graduates need to increase by an average of six percent annually (Caughey, 2006). The ASLA has responded by becoming highly involved in working with colleges and universities to increase the number of LA programs offered. The ASLA also has a high school mentoring program in place and is even working to "target" middle school students.

1.1.2 Decision-Making as a Process: the AIDA-SC Model

As demonstrated by the actions of the ASLA, market demand alone does not fill seats. Promotional tactics must be implemented to increase awareness among potential consumers of a LA career. In addition, strategies must be in place to encourage potential consumers to take action and become customers; that is, LA students. The process of adopting any product can be modeled using the AIDA-SC model (see **Figure 1.1**). This basic concept is to funnel potential consumers closer to adoption and to satisfy those who have decided to accept the product offering:

- Awareness – grabbing the attention of the potential consumers.

- Interest – getting the consumers to consider the product offering by communicating its benefits.

- Desire – persuade consumer that the product offering will meet their needs.

- Action – convert potential consumers to realized customers.

- Satisfaction – satisfy the customers so they don't defect from the product offering.

Figure 1.1
AIDA-SC "Funnel" Model
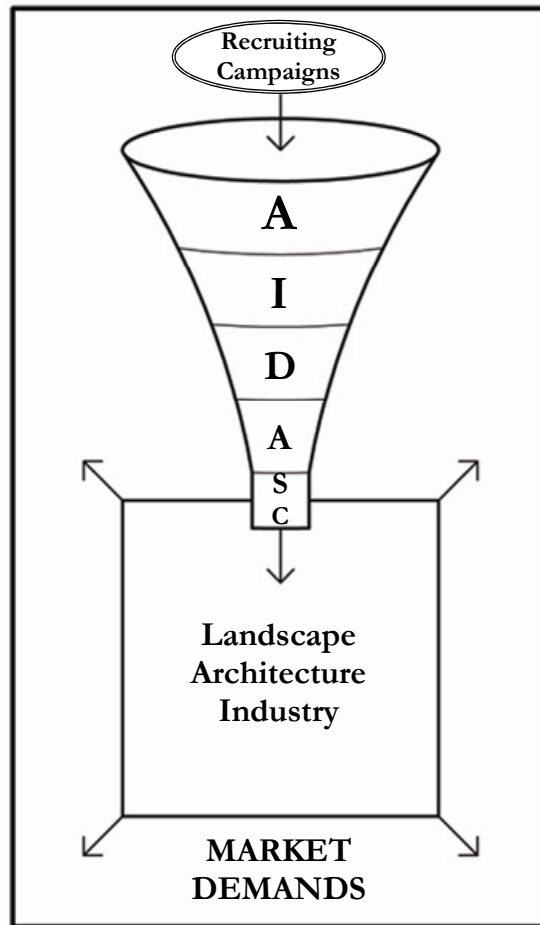
A	Awareness
I	Interest
D	Desire
A	Action
S	Satisfaction
C	Conviction

- Conviction – create customer loyalty so the customers share the product offering with others and they feel connected to the brand of the product offering.

Marketing strategies are simple within this model: (1) get as many potential consumers into the funnel as soon as possible, (2) move them through the funnel (toward adoption) as

efficiently as possible, and once these potential consumers adopt the product offering and become realized customers, (3) make them as happy as possible.

1.1.3 Marketing Strategy 101: Communicate benefits to potential consumers

To grow the field of LA, key stakeholders are attempting to promote and sell the idea of a major and a career in LA. How should such messages be presented to potential consumers? Simple marketing strategy is as follows: identify the current customers and understand what benefits they will receive in adopting the product and communicate those benefits to those considering the product offering. In simple terms, this means one must identify why the current group loves your product and communicate those reasons to potential consumers who are aware and interested in order to successfully accelerate their progress in the funnel.

Such a strategy has two underlying premises: (1) current customers matter and their perspectives are essential to developing and implementing marketing strategies; and (2) promotion to potential consumers needs to be based on their needs. Taken together, this is the basis of the marketing concept: from the beginning, an organization should put the consumer first, and all of its business activities should align with meeting the needs of the consumers. Successful organizations implement such market-based strategies. Understanding the current customer and competing offerings made to potential consumers is the essence of market orientation.

1.1.4 Foundation for Market Segmentation: Defining psychographic variables

As such, LA recruiters need to do more than recognize the nature of their product offering; they need to understand potential consumers. Certainly, recruitment should focus

on increasing awareness among potential customers before they reach college. In addition, promotional efforts may change once non-majors reach the university. For those who have made the choice to major in LA, efforts and programs need to be created to encourage these students while in their undergraduate programs. Once they complete their degree, students need to be assisted in beginning their lifelong career within the LA industry.

Although all of these ideas are relevant and of importance, many of them will be ineffective until an understanding of current customers is fully vetted. It is the intent of this study to better understand current customers and the benefits of a career in LA, so that those benefits can be communicated effectively to potential consumers; that is, *why does someone choose to pursue a degree in landscape architecture?* To answer such questions, simple demographics of current students can be gathered, but that is not sufficient to fully appreciate their motives and rationales for choosing to pursue a degree in LA. For this reason, psychographic variables need to be defined so the current customers can be appropriately segmented.

Psychographic variables are any attributes relating to personality, values, attitudes, interests, and/or lifestyles. In context of the archetype Ricky in the introduction, embedded latent psychographic variables need to be brought to light in order to fully appreciate and understand the market currently being served. Once psychographic variables are identified and defined in the LA context, they can then be used to understand the current customers and to implement marketing strategy. The variables can be used to create archetype psychographic profiles of current customers based on a segmentation process.

Market segmentation is the process of classifying customers into groups with some conceptually-meaningful characteristics (Kerin and Peterson, 2007). Such characteristics generally include demographic and psychographic variables. To appropriately segment a market, simple questions need to be considered: (1) who is the customer, (2) what do they want in a product offering, (3) how do they want the product offering, (4) when do they want the product offering, (5) where do they want the product offering, and (6) why do they want the product offering. Segmentation has several benefits for developing marketing strategy. It identifies opportunities for improvement of the current product offering. It also identifies opportunities for expansion and growth into new markets. Beyond identifying new opportunities, it is invaluable to manage current marketing programs. Insights from segmenting the market will improve the allocation of marketing resources and will help in designing marketing programs that will be most effective in reaching the specific classified groups (target marketing).

Within this product-consumer concept, it is essential for LA stakeholders to understand and segment current LA students so better strategies can be developed to increase awareness, promote the product-offering (degree in LA), increase student interest, increase student enrollment, and satisfy the student beyond the initial degree so the entire LA economy can grow and develop.

1.1.5 What this Research Is and What it is NOT

Although this research can provide some initial insights into strategy development, its purpose is to understand the rationale behind the choice to major in LA, not to develop myopic short-term strategies. The creation of psychographic variables is a complex process

that is intended to broaden and expand the perspectives of the stakeholders and inform

them of the variables that should be considered in understanding the current customers.

Marketing strategies can later be designed and implemented based on some segmentation

process of the psychographic variables introduced and defined in this research.

Figure 1.2
Differences in Research Perspectives

	Positivist	**Qualitative**
Logic	Deduction	Induction
Focus	Etic	Emic
Ontology	Naïve Realism "real" reality but apprehendable	Relativism: local and specific constructed realities
Epistemology	Dualist/Objectivist: findings are true	Transactional/Subjectivist: Created Findings
Results	Verification of Hypotheses	Dialectical/Hermeneutical
Findings	Data-driven	Thematic

In addition, this research represents Qualitative Research. This is many times

misunderstood when a large volume of quantitative data is included in Qualitative Research.

A full description of the methodology will be discussed in **Chapter 3**; however an overview

of this type of research is summarized in **Figure 1.2** which identifies how this research

approach compares to a Positivist Research approach. This research is intended to raise

more questions than it answers and suggest themes in a dialectical format. This research is

not intended to provide simple solutions rather it is intended to expand conceptualization of

and appreciation for the problem.

9

1.2 Significance: Benefits of this Research

This study, which is in the pioneering stages within the discipline, can provide a significant resource to individuals involved (either directly or indirectly) in LA. Those involved in recruitment efforts within the discipline (i.e. ASLA, potential students, professors, department heads, etc.) may use insights from this study to direct their efforts or create more effective strategies, whereas a high school guidance counselor may use this study to recognize his/her students' interests and attributes as they relate to LA students. Below I describe in more detail benefits of this research, which include identifying potential students, helping in the recruitment process, and providing guidance to students. These benefits are not intended to be exhaustive, but do include many of the more apparent influencers.

1.2.1 Potential Students

Students who are thinking of majoring in LA or a closely related field could use the information from this research to make an informed decision. This study provides data from current LA students who share the decision-making process they used to select this major. A potential student could see how his/her motivations, personality, abilities, and even passions compare with students who study LA to gauge if it is the right field of study for him/her.

1.2.2 Landscape Architecture Faculty

This study is for the LA professor who is interested in the success of his/her students (both in and out of the classroom) as individuals as well as a collective group. The understanding of an individual's motivations, personality, abilities, and passions could significantly help in the education that each student receives in the classroom or studio. Professors who serve as advisors can use this information to inform the direction they give

to students throughout their college career and even help initiate conversations to understand a student's background.

Those involved in recruitment efforts within a LA department can use data from current students to effectively recruit interested students. For example, if about half of the students who end up studying LA transfer into the program from either a junior college or another major at the same university and a large portion of these students transfer from architecture, the department could focus recruiting efforts on unsatisfied architecture students at the university or students in courses related to architecture at junior colleges in order to increase enrollment. It is not a wise use of resources to recruit for recruitment sake, so this study will provide some direction in these efforts.

1.2.3 American Society of Landscape Architects

The ASLA has taken a large portion of responsibility for increasing enrollment into LA programs to match the high increase in industry demands. Similar to faculty in an individual department, but on a broader scale, the ASLA can use this research to increase the efficiency of their recruitment efforts. A few examples of ways the ASLA could focus their efforts include: (1) educating youth about LA since about half the population did not learn about LA as an academic field until after high school, (2) involving youth with professionals since many students mention the influence of industry individuals on their decision to pursue a degree in LA, and (3) developing LA programs in states that do not currently offer a program since about 80% of respondents attended a university in their home state and about half of respondents chose their university prior to choosing LA as a major. Though

some states have multiple LA programs, 14 states (28%) currently are without accredited undergraduate programs.

1.2.4 High School Counselors

High school guidance counselors can have a significant influence on students' career choices. With this study, counselors could evaluate whether students have interests that align with the students within this research and perhaps suggest LA as a potential field of study in college. Since the data shows that about half of students are unaware of LA until after high school, the high school counselor could also educate students about LA. This may require some education for the counselors from industry representation.

1.3 Thesis Organization

Following this introduction, the thesis is broken into chapters that include Theoretical Framework, Research Methodology, and Findings and Discussion. The Theoretical Framework chapter includes a review of the literature surrounding similar research and introduces the theoretical lens used to get at the central research question. It also includes the integrated model and observations based on this model. The Research Methodology chapter introduces the research strategy and tactics used in this research. It also includes results that were found using the various tactics as well as descriptive statistics. The Findings and Discussion chapter includes a condensed version of the findings from the research. It also includes a discussion of the limitations of this study including future research possibilities prior to concluding the study.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 How has the question been studied?

Though my specific research question, *why does someone choose to pursue a degree in landscape architecture*, and questions like it have not been adequately researched in the literature, many related studies can inform this research. I will discuss general studies that deal with students choosing universities and majors. I will then review specific research that deals with students choosing majors within specific disciplines (including LA). I will focus on how the past research was performed and what the key findings were. The examples are intended to show the differing approaches to similar research. See **Figure 2.1** for a summary of this past research.

2.1.1 Generally: Choosing a University

Hemsley-Brown (1999) summarizes the findings of a longitudinal multi-site study which examined the reasons and motives of 16-year olds choosing among colleges. She analyzed decision-making processes and strategies, and revealed subjective and objective approaches in students' handling of schools' marketing information. The study concludes that although students initially base their choices on pre-dispositions and work within social and cultural frames of reference, young people also rely on the marketing information provided by colleges to justify their choices and to announce their decisions to others. Krutii and Fursov (2007) analyzed goals and motives for enrolling in institutions of higher learning through a survey issued to 590 students in tenth and eleventh grades in the

Figure 2.1

Summary of Past Research

Author(s)	Year	Choice	Theory	Strategy/ Tactics	Key Findings
Hemsley-Brown	1999	University	none	Qualitative/ Longitudinal	• students choose within social/cultural frames, but also rely upon university marketing information to justify decision
Krutii & Fursov	2007	University	none	Qualitative/ Survey	• main goal of most students is the prospect of getting a job in the future
Fitzgerald	2003	University	none	Qualitative/ Lit. Review	• persuades students to consider numerous factors to choose a university based on individual needs
Adragna	2009	Major	none	Qualitative/ Questionnaire	• higher self-esteem = higher expectations = higher prestige jobs • children aspire to a higher job prestige than their parents
Beggs et al	2008	Major	none	Quan-Qual/ Survey & Meansend	• important influences: (1) Information Search, (2) Match with Interests, (3) Job Characteristics, (4) Financial Considerations, (5) Psycho/Social Benefits, and (6) Major Attributes
Akbulut et al	2008	IS	SCCT*	Quantitative/ Survey & PLS	• provided insight into intervention strategies to attract more students to the IS field
Heinze & Hu	2009	IT	SCCT* & TPB*	Quantitative/ Survey	• college undergraduates with positive attitudes toward IT careers and high perceived behavioral control regarding IT majors had greater intention of pursuing IT majors
Kuechler et al	2009	IS	none	Qualitative/ Survey	• students perceptions shared showed the amount of work needed to get an IS degree along with keeping up with the training necessary did not balance with the salary levels
Zhang	2007	IS	TRA*	Quantitative/ Survey	• important factors influencing intention: (1) Genuine Interest, (2) Job Availability, (3) Difficulty of Curriculum, and (4) Opinions of Family & Professors
McInerney et al	2006	IT	none	Qualitative/ Focus Groups	• students were influenced by: (1) positive high school experiences, (2) interest in computing, (3) an aptitude for math and physics, (4) perceived job prestige, (5) expectation of good salary, (6) encouragement of family members, and (7) influence of key individual (teacher or work supervisor)
Pollock et al	2002	Accounting	none	Qualitative/ Survey	• high school guidance counselors' perceptions of the accounting profession are inaccurate and not very positive
Tan & Laswad	2009	Accounting	TPB*	Qualitative/ Survey	• higher proportion of accounting students decide on their major prior to university study (as compared to other business students)
Powers	2000	Landscape Architecture	none	Qual-Quan/ Questionnaire	• found factors relating to: (1) student respondents, (2) family, (3) when and why students chose landscape architecture, and (4) university choice

* SCCT = **Social Cognitive Career Theory**; TPB = **Theory of Planned Behavior**; TRA = **Theory of Reasoned Action**

Moscow, Russia area. The results show that the main goal of most students is the prospect of getting a job in the future. The cumulative rankings of importance of these goals are as follows: (1) finding work that is good, prestigious, and highly paid, (2) raising the level of their knowledge, expanding their intellectual horizon, and being well educated, (3) earning money and having a decent standard of living, (4) acquiring a good education, a profession, a specialty, and (5) finding a job plus self-realization. Examples of factors that determine a student's choice in an institution of higher education are: (1) availability of computers, (2) availability of sports facilities and equipment, (3) opportunity to combine work and school, (4) difficulty of the instruction of the institution, (5) difficulty of enrollment in the institution, (6) popularity/prestige of the institution, (7) proximity of institution to the home, and (8) sufficient instructors and quality of instruction as a whole. This study ultimately represents students' perceptions of their choice of a higher education institution.

To aid in students' selection of a university, Fitzgerald (2003) outlines a number of factors that will help students find the best-fit school for their individual needs. Students' personal factors include interests, level of independence, proximity to family, qualifications, learning style, expectations, career plans and participation in athletics and activities. Considerations about the university include size, setting, diversity and climate. In short, this article is a reference for students and attempts to persuade them to choose their university based on numerous factors.

2.1.2 Generally: Choosing a Major

Adragna (2009) studied the influences on career choice during adolescence, specifically career choice and future plans among high school students, to attempt to identify

what factors influence students' career aspirations. Students from two different high schools participated in a questionnaire that asked students about their academic future, career aspirations and expectations, and adult influencers. Adragna's findings show a trend in children aspiring to a slightly higher level of prestige for their reported real job than that of their parents. Another finding is that students with high self-esteem have higher expectations which correlate with higher prestige jobs and vice versa; those with low self-esteem have lower expectations and lower prestige jobs. In addition, mothers have a significant influence on their sons' future aspirations; females have higher career aspirations than males; and males report higher levels of career indecision than females.

A study by Beggs and colleagues (2008) identified the foundations of the psychological process by which undergraduate students select their academic majors. They first used means-end analysis to identify the factors that students consider integral to the process of selecting a major. They then conducted a large-sample survey of undergraduate students to better understand how "important" the identified factors are to students as part of this decision-making process. They finished with feedback from practitioners that helped in making recommendations for recruiting and advising today's college students. They found six categories that influenced students' choice of major: (1) Information Search, (2) Match with Interests, (3) Job Characteristics, (4) Financial Considerations, (5) Psycho/Social Benefits, and (6) Major Attributes.

2.1.3 Specifically: Choosing a Major in Other Disciplines

In recent years, enrollment has declined significantly within majors such as Information Systems (IS), Information Technology (IT) and Accounting. The research

presented here does not give a cause for this decline, but the decline has called for much research to identify why students choose these fields and how to best attract new students to them.

Akbulut and colleagues (2008) focused their study on using instrumental assistance to promote student choice of IS as a primary field of study. They used Social Cognitive Career Theory (SCCT) (Lent et al, 1994) to frame their research. SCCT outlines three "building blocks" of career development: self-efficacy, outcome expectations and personal goals. The study concluded with insight into particular intervention strategies to attract more students into the IS field. Heinze and Hu (2009) also use SCCT as a framework along with the Theory of Planned Behavior (TPB) to determine why college undergraduates chose IT.

Kuechler and colleagues (2009) studied why students choose any major in general, and why students no longer choose to become an IS major in particular. They performed a detailed survey using 163 responses from students. Their most prominent finding was that students most affected in their decision to pursue IS already had a "genuine interest" in the field ("not surprising"). They also identified factors that did not appear to influence this decision—for example, the promise of good job salaries, job security, the advice of others, or even the images of those who became IS professionals. Students' perceptions showed that it was not fiscally beneficial to go through the amount of work needed to get an IS degree along with keeping up with the training necessary in the profession with the current salary levels.

Zhang (2007) also attempted to understand undergraduate students' intentions to choose an IS major. He used the Theory of Reasoned Action (TRA) (Ajzen and Fishbein,

1980) to categorize factors (presented in previous research) that could influence students'
choices. TRA has three general constructs: behavioral intention, attitude and subjective
norm. Zhang used survey data to test his research model. Results identified "genuine
interest" in IS field, job availability, difficulty of IS curriculum, and opinions from family and
professors as important factors that affect students' intentions to choose an IS major.

McInerney and colleagues (2006) performed a qualitative study by conducting focus
group interviews with 54 undergraduate university students majoring in computer science,
computer engineering and IT to determine why students choose an IT career. Results
suggest that students were influenced by positive experiences in high school, an interest in
computing, an aptitude for math and physics, the perceived job prestige, the expectation of a
good salary, the encouragement of family members, and the influence of a key individual
such as a teacher or work supervisor.

Enrollment in accounting majors has also declined in recent years. Pollock and
colleagues (2002) explored reasons for this decline specifically by evaluating how high school
guidance counselors (HSGC) perceived the accounting profession. They to surveyed three
hundred randomly selected HSGCs from three different states; of these, 142 usable surveys
were returned. The survey was framed from an extensive existing national dataset. Results
from the survey indicate HSGCs' perceptions of the accounting profession as inaccurate and
not very positive.

Tan and Laswad (2009) surveyed the same students from their 2006 study in order to
compare results from the beginning and end of the students' degree program regarding their
major choices, beliefs and attitudes towards majoring in accounting or a non-accounting

discipline. They used the theory of planned behavior to compare intentions with behavior in relation to majoring in accounting and other business disciplines and to examine changes in attitudes and beliefs between the beginning and end of university study. The results suggest that a higher proportion of accounting students than other business students decide on their major prior to university study suggesting that promotion of accounting as a career should be focused on pre-university study.

2.1.4 Specifically: Choosing a Major in Landscape Architecture (LA)

Not much literature has been directed toward my research topic; there is, however, one comparable study done by Matthew Powers (2000), an unpublished master's thesis. His research began with a research question similar to this study; however, his research methods differed drastically. His research objectives were "(1) to provide a baseline description of landscape architecture students regarding their decision to major in landscape architecture and (2) to explore and describe when and why students made the decision to major in landscape architecture." His study was descriptive based on data collected through a questionnaire that was distributed nationally to undergraduate LA students currently enrolled in an ASLA-accredited LA program. The total number of respondents was 536 students from 18 of the 46 nationally accredited schools. His data analysis used simple correlation methods. His findings were organized into four sections associated with career decision-making: (1) Questionnaire respondents, (2) Role of family in student choice, (3) Factors relating to when and why students chose landscape architecture, and (4) Institution choice and future career choices.

2.1.4.1 Questionnaire respondents. Findings indicate that 69% of LA students are male and 31% are female; 90% of students describe themselves as Caucasian.

2.1.4.2 Role of family in student choice. Findings indicate that 61% of LA students come from a family with an annual income of $60,000 or more and 70% of landscape architecture students have at least one parent with a college degree. Parents of 43% of the respondents influenced their choice of LA as a major and 88% of the respondents considered their parents as encouraging of this choice.

2.1.4.3 Factors relating to when and why students chose landscape architecture. A majority (55%) of students transferred into LA from another discipline. Some 30% of students did not hear of LA until they were enrolled in college. The other 45% of respondents began college majoring in LA and 24% of respondents heard about LA while in high school or earlier. Respondents' decisions influenced by a landscape architect were 19%. The opportunity to improve the landscape was indicated by 70% of respondents as a reason for choosing LA as a major. Less than 36% of respondents identified a good salary as important in choosing LA. As for future employment opportunities, 52% of respondents felt this was important. Other factors considered important by respondents include (1) a wide range of opportunity in the profession (36%), (2) the opportunity to pursue art and design (15%), (3) the enjoyment of the outdoors and nature (8%), and (4) an interest in golf (5%).

2.1.4.4 Institution choice and future career choices. The quality of the institution, as indicated by 84% of respondents, was an important factor. Other factors included geographic location, tuition costs, quality of professors, and the reputation of the LA program.

2.1.5 Limitations of Past Research

Past research discussed general university and major choices, but by being general, it cannot be directly related to specific universities and majors as this study requires. The research that considered career choice within specific majors outside of LA (i.e. IS, IT, and Accounting) introduced the need for theory to frame the research. However, these theories were posed within a single dimension of intrinsic motivation called self-efficacy (which can be argued to be a form of competence within my framework). Though various theories have been presented, no individual study has used a multi-theory framework as I use in this study. To past research, I also contribute the use of multiple statistical lenses to appreciate the complexity of the problem and identify key themes.

As for the past research most closely aimed at my research topic (i.e. Powers, 2000), I perceived a study that shared questionnaire data in a written form with little interpretation beyond the numbers. His study identified numerous factors that could lead someone to the decision to major in LA, but these factors are without structure, making it difficult to clearly understand why someone would choose to major in LA. It is difficult to identify any specific key findings. Also, this research lacks any theoretical framework. I have several open-ended questions to gauge this choice of major.

2.2 Motivational Theory

To help with a solution to my research question, *why does someone choose to pursue a degree in landscape architecture*, I will rely upon motivational theory. Finding answers to a why question, particularly those that deal with human choice, will require me to search deeper into the psychology of motivation. To do this, I will first take a broad look at motivational

theory then narrow my lens until I have focused on the motivation of an individual. To better understand the individual, I will also introduce related theories of personality and intelligence which consistently fit within the chosen motivational meta-theory. See **Figure 2.2** for a summary of the theories outlined below.

Figure 2.2
Summary of Theoretical Framework

Theory	Author(s)	Year	Brief Description
Self-Determination Theory	Deci & Ryan	1985	Innate Psychological Needs: • **Competence** • **Autonomy** • **Relatedness**
Personality Theory	Kelly	1955	• **Fundamental Postulate**: A person's processes are psychologically channelized by the ways in which he anticipates events. • **Construction Corollary**: A person anticipates events by construing their replications. • **Individuality Corollary**: Persons differ from each other in their construction of events.
Theory of Multiple Intelligences	Gardner	1983	Eight Intelligences: • **Linguistic**: capacity to use language to express self and understand other people • **Musical**: capacity to think music (hear, recognize, remember, and manipulate patterns) • **Logical–Mathematical**: capacity to understand underlying principles of a causal system or manipulate numbers • **Spatial**: ability to represent the spatial world internally in the mind (a 'visual person') • **Bodily–Kinesthetic**: capacity to use your body to solve a problem, make something, or put on some kind of production • **Interpersonal**: understanding other people • **Intrapersonal**: understanding of oneself • **Naturalist**: sensitivity to features of the natural world; ability to discriminate among living things

2.2.1 Self-Determination Theory (SDT)

Although many theories of motivation exist, I chose to use the theory originated by Deci and Ryan (1985) called self-determination theory (SDT). Most motivational theories focus on the energy, but not necessarily the direction of an individual's motives. SDT accounts for both energization and direction: "Motivation concerns energy, direction,

persistence and equifinality—all aspects of activation and intention" (Ryan and Deci, 2000).

To understand these directional forces of motivation, studies have focused on the two major

types of motivation, intrinsic and extrinsic (internal and external). Simply put, *intrinsic*

motivation refers to motivation that comes from inside an individual whereas *extrinsic*

motivation refers to motivation that comes from outside an individual. Intrinsic motivation

is an "inherent tendency to seek out novelty and challenges, to extend and exercise one's

capacities, to explore, and to learn […] The term extrinsic motivation refers to the

performance of an activity in order to attain some separable outcome and, thus, contrasts

with intrinsic motivation, which refers to doing an activity for the inherent satisfaction of the

activity itself" (Deci and Ryan, 1985). Thus, if intrinsically motivated individuals receive

satisfaction in the activity itself, then it is the extrinsically motivated individuals who receive

satisfaction in the reward or outcome for doing the activity. For example, students are

assigned a math problem; those who are extrinsically motivated complete the problem

because their grade depends on it and those who are intrinsically motivated complete the

problem because it is enjoyable or challenging.

SDT is a "meta-theory of human motivation concerned with the development and

functioning of personality within social contexts. It focuses on the degree to which people

endorse their actions at the highest level of reflection and engage in the actions with a full

sense of choice." The idea is that a self-determined person experiences life authentically with

a sense of freedom to behave based on personally important information that rejuvenates

and revitalizes the person further encouraging future self-determined behavior. SDT is

concerned with people's inherent growth tendencies and their innate psychological needs

that are exclusive to intrinsic motivation. Specifically, SDT has to do with the motivation

behind choices that are made without extrinsic influence or hindrance. Every person

inherently possesses motivational growth tendencies and the psychological needs that help

encourage these growth tendencies (Deci and Ryan, 1985):

> This natural human tendency does not operate automatically, however, but instead requires ongoing nutriments and supports from the social environment in order to function effectively. That is, the social context can either support or thwart the natural tendencies toward active engagement and psychological growth.

Deci and Ryan, within SDT, identify three innate and essential psychological needs:

competence, *autonomy* and *relatedness*.

2.2.1.1 Competence. White (1959) pioneered the "concept of competence" within

motivational theory to help fill the gaps left by other theories of the time. He defines

competence as an "organism's capacity to interact effectively with its environment." He

argues that competence is the result of gradual learning by organism-environment

interaction. White describes this competence motivation, which he called effectance

motivation, as "directed, selective and persistent, and it is continued… because it satisfies an

intrinsic need to deal with the environment" or, in other words, organisms have an innate

need to experience competence. Additionally, White introduces the idea of play. In times

when competence is suppressed within an organism by the environment, the organism will

adjust and find something in which it has assured competence to pursue. For example, an

individual feeling incompetent within the work environment may go golfing after work to

reestablish psychological competence. White's concept of competence would provide a

catalyst to theories still to come. The development of competencies—walking, talking or

writing—are in part maturational, according to White (1959), but they are in large part learned, and this learning is motivated. The innate need for competence provides the energy for this learning. An individual who feels or perceives competence with respect to an activity places a higher level of importance on this activity because it allows one to attain a goal and also satisfies a need for engaging in such an activity at which one feels effective. Feelings of challenge can play a role in competence in that people who are "free of the intrusion of drives and emotions will seek situations that interest them and require the use of their creativity and resourcefulness. They seek challenges that are suited to their competencies, that are neither too easy nor too difficult" (Deci & Ryan, 1985). In short, people need to feel competent at what they do; only then can they seek further challenges that will ultimately increase their abilities.

2.2.1.2 Autonomy. Autonomy is simply the governing of self. Autonomy as an innate psychological need encompasses the idea that individuals need to be free to choose for themselves, they need to set their own goals and they need to feel in control of their own lives. This is the experience of choice. The idea of being self-determined is the degree to which an individual chooses to participate in an action. Causality, not control, is the focus of external influences on an autonomous, self-determined individual.

2.2.1.3 Relatedness. Individuals desire and, in fact, need to have and develop feelings of competence and autonomy in the society of others. People have an innate psychological need to be connected (or have relatedness) with others. It is these relationships that help encourage intrinsic motivation. Others play a role in the environment in which our personal needs are encouraged or thwarted. These three basic psychological needs are nutriments for

healthy development. They are innate, universal and essential for development in all people, regardless of gender, race or culture: "to the extent that the needs are ongoingly satisfied, people will function effectively and develop in a healthy way, but to the extent that they are thwarted, people will show evidence of ill-being and non-optimal functioning" (Deci & Ryan, 1985).

2.2.2 SDT & Landscape Architecture

This particular meta-theory of self-determination is a great fit for my research purposes within LA. This theory draws a clear distinction between inherent (intrinsic) motivation and learned (extrinsic) motivation. These inherent motivations are revealed as a discussion of direction and intention is gauged with each LA student. Why did they choose LA to study, what are their future career goals, what are their passions? Sure some respondents are interested in learned motivations (like money and recognition), but ultimately, these questions open understanding into the students inherent motivations (like personal feelings of success and helping people).

2.2.3 Theory of Personal Constructs (PT)

To help understand the complexity of human motivation as it relates to human cognition, I include a theory of personality (PT) to ascertain individual differences as they relate to motivation. As with motivational theories, many different personality theories abound. Kelly (1955) introduced a theory of personality that is consistent with the chosen motivational meta-theory. This theory posits that every individual has unique perspectives (world views) based on anticipations. These anticipations create internal constructions of the world. Over time, constructions are acted upon, replicated, and refined, which also refines

future anticipations. This theoretical structure is consistent with SDT in that it centralizes emphasis on the internal views of the individual. Constructions can be created that are consistent with inherent intrinsic motivations; contrarily, they can be created that are consistent with extrinsic external forces. The former represents alignment with the self-determined individual to create an authentic self. The latter represents a conflict between internal motives and external forces which results in an introjected self—a self that is not in harmony with self-determination.

Kelly's theory defines personal constructions using phenomenology as the philosophical lens. Three elements of this theory are fundamental to the research employed and the methodology implemented to understand LA student motivations.

2.2.2.1 Fundamental Postulate. *A person's processes are psychologically channelized by the ways in which he anticipates events.* The postulate first identifies as its focus the individual person rather than groups of people or a person's behavior. Process concerning a person assumes the person as a form of motion. This person's processes are "operating in a network of pathways rather than as fluttering about in a vast emptiness" (Kelly, 1955) or the processes are channelized. Kelly (1955) describes the last two words of the postulate, anticipates events, as the place where predictive and motivational features are built into the theory (Kelly, 1955):

> [M]an's structured network of pathways leads toward the future so that he may anticipate it. Anticipation is both the push and the pull of the psychology of personal constructs. Man ultimately seeks to anticipate real events. Anticipation is carried on so that future reality may be better represented. It is the future which tantalizes man, not the past.

2.2.2.2 Construction Corollary. *A person anticipates events by construing their replications.*

Construing means "placing an interpretation: a person places an interpretation upon what is construed. Only when man attunes his ear to recurrent themes in the monotonous flow does his universe begin to make sense to him. Once events have been given their beginnings and endings, and their similarities and contrasts construed, it becomes feasible to try to predict them" (Kelly, 1955). Thus, a person attempts to understand a future reality by using patterns from the past. This is how people view the world—it is their lens.

2.2.2.3 Individuality Corollary. *Persons differ from each other in their construction of events.* Kelly (1955) describes this corollary:

> People can be seen as differing from each other, not only because there may have been differences in the events which they have sought to anticipate, but also because there are different approaches to the anticipation of the same events. No two people can play precisely the same role in the same event, no matter how closely they are associated. Persons can find common ground through construing the experiences of their neighbors along with their own.

Cultural borders are created as individuals cease to seek this common ground with their neighbor. This is how individual people differ in their views of the world as each sees a different subjective world.

2.2.4 PT & Landscape Architecture

This theory benefits my research in that it allows me to search for themes among the respondents, rather than providing simple correlations. The theory states that everyone anticipates events by the construction of their replications and everyone differs in this construction process. Yet, there are patterns among the ways in which different people construct their future. This is also true within the major choice of LA. Clearly, all participants had constructed a future of majoring in LA, making them all similar but

different in the manner in which these constructions took place. Concisely, this theory

justifies patterns found in human behavior while accounting for individuality.

2.2.5 Valued Ability as Multiple Intelligence Theory (MI)

The final key element of my integrated theory is a theory of intelligence. LA students

(like the ones in this research) are labeled "different" but I need a way to capture how

(intellectually) they are different. Therefore, intelligence is another means to understand the

individual's motivation. Gardner (1983) introduced Frames of Mind: the Theory of Multiple

Intelligences (MI). "Intelligence refers to the human *ability* to solve problems or to make

something that is *valued* in one or more cultures" (Gardner, 1997). Intelligence is a function

of the brain and can be expressed through ability. Individuals may possess many or all of the

intelligences, but will continue to rely on one or two as their strengths. "We can all get better

at each of the intelligences, although some people will improve in an intelligence area more

readily than others, either because biology gave them a better brain for that intelligence or

because their culture gave them a better teacher" (Gardner, 1997). Gardner's original theory

included seven intelligences: *linguistic*, *musical*, *logical-mathematical*, *spatial*, *bodily-kinesthetic*,

interpersonal, *intrapersonal* intelligences. Later, an eighth intelligence was added, *naturalist*

intelligence (Gardner, 1997), which is meaningful to my research within LA, a career that

directly corresponds with the natural world.

2.2.5.1 Linguistic Intelligence.

> Linguistic intelligence is the capacity to use language, your native language,
> and perhaps other languages, to express what's on your mind and to
> understand other people. Poets really specialize in linguistic intelligence, but
> any kind of writer, orator, speaker, lawyer, or a person for whom language is
> important highlights linguistic intelligence (Gardner, 1997).

Linguistic intelligence can be a key element for LA professionals and students in their ability

to communicate design textually and verbally.

2.2.5.2 Musical Intelligence.

> Musical intelligence is the capacity to think in music, to be able to hear patterns, recognize them, remember them, and perhaps manipulate them. People who have a strong musical intelligence don't just remember music easily—they can't get it out of their minds, it's so omnipresent (Gardner, 1997).

This can be a key element for many in LA because of its connections with design. Rhythm

and pattern are essential elements related to both musical and design processes.

2.2.5.3 Logical-Mathematical Intelligence.

> People with a highly developed logical-mathematical intelligence understand the underlying principles of some kind of a causal system, the way a scientist or a logician does; or can manipulate numbers, quantities, and operations, the way a mathematician does (Gardner, 1997).

This can be a key element for landscape architects as it keeps the abstract grounded in

reality. Those involved in the engineering aspects of the discipline rely heavily upon this

ability.

2.2.5.4 Spatial Intelligence.

> Spatial intelligence refers to the ability to represent the spatial world internally in your mind—the way a sailor or airplane pilot navigates the large spatial world, or the way a chess player or sculptor represents a more circumscribed spatial world. Spatial intelligence can be used in the arts or in the sciences. If you are spatially intelligent and oriented toward the arts, you are more likely to become a painter or a sculptor or an architect than, say, a musician or a writer (Gardner, 1997).

This element is really the essence of design; to think spatially to solve problems is a major

part of LA.

2.2.5.5 Bodily-Kinesthetic Intelligence.

> Bodily kinesthetic intelligence is the capacity to use your whole body or parts of you body—your hand, your fingers, your arms—to solve a problem, make something, or put on some kind of a production. The most evident examples are people in athletics or the performing arts, particularly dance or acting (Gardner, 1997).

This element can be expressed in LA in the spaces that are designed with the human body in

mind.

2.2.5.6 Interpersonal Intelligence.

> Interpersonal intelligence is understanding other people. It's an ability we all need, but is at a premium if you are a teacher, clinician, salesperson, or politician. Anybody who deals with other people has to be skilled in the interpersonal sphere (Gardner, 1997).

This is a key element in many professions, but it is critical in LA as many designs are for

other people. Clients need to be understood through proper communication in order to

design for someone else's particular needs.

2.2.5.7 Intrapersonal Intelligence.

> Intrapersonal intelligence refers to having an understanding of yourself, of knowing who you are, what you can do, what you want to do, how you react to things, which things to avoid, and which things to gravitate toward. We are drawn to people who have a good understanding of themselves because those people tend not to screw up (Gardner, 1997).

As an element of LA, individual designers understand more about themselves through each

design. Gardens for personal reflection and healing are created for people to better

understand themselves. To understand others, one often times needs to first understand

oneself (one's fears, joys, emotions, etc.).

2.2.5.8 Naturalist Intelligence.

> Naturalist intelligence designates the human ability to discriminate among living things (plants, animals) as well as sensitivity to other features of the natural world (clouds, rock configurations). This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef. The kind of pattern recognition valued in certain of the sciences may also draw upon naturalist intelligence (Gardner, 1997).

This element is the key that sets LA apart from the other design disciplines. The connection between the built and natural worlds is encompassed within LA. It is this connection that may, in fact, create the breadth of the discipline.

2.2.6 MI and Landscape Architecture

The theory of multiple intelligences (MI) gives us a unique lens to understand the distinctive learning paradigms of LA students. Everyone has at least one intelligence (or ability) that he/she relies upon to continue in his/her preferred learning methods. Using MI with an application toward LA gives me a way to measure the abilities preferred by LA students and to what degree the abilities are distributed among the sample.

2.3 Integrated Model: Understanding Intrinsic Motivation Using SDT, PT, & MI

The major rationale for this theoretical framework is not the use of any one theory, but in how the theories relate to one another (see *Figure 2.3*). The underlying premise of this integrated model is that individuals are a sum of their life experiences based on action, anticipation, construction, and replication and that they are inherently motivated to be self-determined based on the different abilities (intelligences) that they possess. These abilities may be valued differently internally than they are valued externally. The juxtaposition of internal motivations and abilities and external motivations and abilities is the essence of

human existence. If unity exists between internal forces and external forces, a synergetic

authentic self will result. If not, the conflict can debilitate the resulting introjected self.

Intrinsic motivation is the key to this integrated model, as it is the basis of Self-

Determination Theory (SDT). It also links to how cognitive anticipations occur (Personality

Theory, PT) and it defines the internal value placed in an individual's abilities (Theory of

Multiple Intelligences, MI) and how one individually values others (internally based on

meritocracy or externally based on wealth, position, social status).

Figure 2.3
Integrated Model: Motivation, Multiple Intelligences, and Personality (with self and choice)
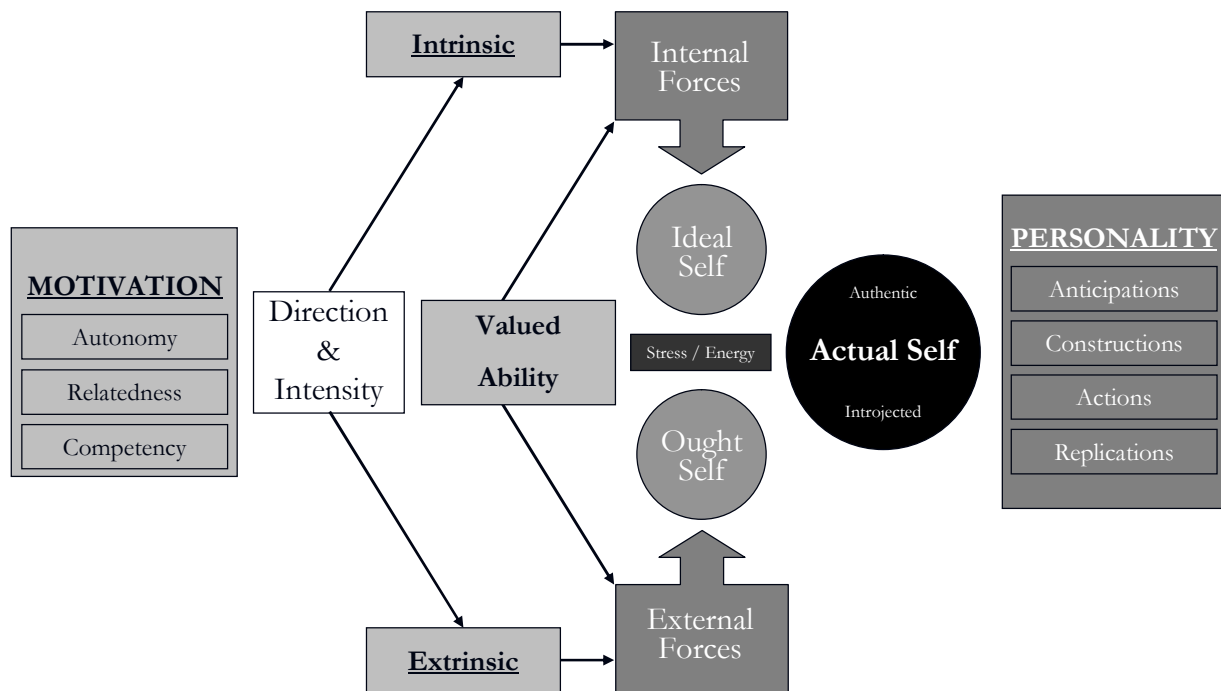
SDT introduces three dimensions (needs) that ensure intrinsic motivation, whereas

theories used in past research were based in only one dimension (i.e. self-identity). The idea

of direction and energy is a conflict between internal and external motivations. PT is

important to understand how individuals view the world around them. It accounts for the deficiencies of the three needs of SDT. MI helps us understand individuals' abilities. These abilities are the limiting factors to one's world views, or personality. SDT and MI are not directly related to each other, but each has an important role in PT. Thus, all three of these theories are critical to understanding intrinsic motivation which ultimately leads to a student's choice of major. Additionally, SDT and MI have not been used in this type of research previously.

2.3.1 Benefits of an Integrated Model

Other reasons for using this integrated model include (1) the underlying internal drivers are identified without presupposing any extrinsic rationale, (2) the current anticipations of the LA students are captured based on current world views, (3) the LA discipline is a field, I would posit, that relies on autonomous, competent persons, (4) multiple intelligences will help identify certain learning preferences and how they couple with personality and motivation, and (5) it is conceivable that this model can be used in other disciplines to study similar research questions.

A survey only captures a snap-shot of the current state of the individual's anticipations and constructions; as a result, multiple methods must be used to try to appreciate the motivations, abilities, and growth of the individual.

2.3.2 Theoretical observations based on Integrated Model

To clarify the integrated model, and to link it to the research at hand, eight observations will be set forth. With an emphasis on conceptual meaning, anticipated findings are observed rather than hypothesized. These observations are defined based on the

integrated model in context of general understanding of LA. Definition of psychographic elements will help us clarify and understand these observations. In general, the research methodology (see **_Chapter 3_**) includes fundamental data preparation, which validates each of these observations according to my integrated model. The discussion following each observation will also include basis for validation.

2.3.2.1 OBSERVATION #1: Current anticipations are based on historic constructions and replications. This is the fundamental premise of the integrated model. This observation suggests integration in the relationship between motivation, ability, external forces, and personality anticipations. This means that feedback resulting from the juxtaposition between internal and external factors constantly updates personality constructions which support or hinder self-determination. The ebb and flow of intrinsic motivation is an ongoing, dynamic process.

This fundamental principle of endogenous growth appears to be validated. Thematically, the classifications suggest that history plays an important role in understanding and identifying the current anticipations of LA students. Students anticipate their future based on how they constructed the past altered by both internal and external influences. The proposed model suggests that external influences can be consistent with historic constructions and anticipations, which in a way refines anticipations but does not alter the basic construction of the anticipations. On the other hand, certain external influences can conflict with historic constructions which can cause stress and/or create barriers to autonomous support. The new concept of self may be altered into an introjected form or the conflict may generally rob energy. Such conflict may create a change in anticipations in such

a way that other alternatives are considered. In context, this suggests that if LA students defect from the program, it is a result of some event historically that alters anticipations for the future. If appropriately channeled, this knowledge can be very beneficial to LA stakeholders.

2.3.2.2 OBSERVATION #2: LA students are intrinsically motivated; that is, intrinsic factors have greater influence than extrinsic factors. I posit that LA students are inherently motivated for internal reasons. In general, I believe LA students seek autonomy, want to feel competent in the activities they perform, and want to relate to the environments in which they work and to those with whom they collaborate. The idea of intrinsic motivation is that it is a universal principle; however, this observation suggests that unique factors drive intrinsic motivation in the LA domain.

The assessment of the data using several different lenses suggests that LA students are intrinsically motivated. They are inherently interested in aspects of LA that align with their unique MIs; they demonstrate a desire to feel related to their environment and others around them; they want autonomous support (to be encouraged in their choices); and it appears that LA students have self-perceptions of competency as it relates to LA. The ten newly introduced psychographic variables further validate the idea that students have innate needs based on their valued abilities (MIs) and that their personalities are a result of the ongoing process of evaluating and adjusting to the external and internal forces in their lives. In sum, the integrated model appears to be validated: LA students are intrinsically motivated.

2.3.2.3 OBSERVATION #3: LA students have self-perceived design and nature-related abilities. The theory of Multiple Intelligences (MI) suggests that individuals value

ability differently. I posit that LA students have an inherent intrinsic ability that falls under the eighth and newest MI, the Naturalist Intelligence. Not only do students have intrinsic motivation to practice LA and become a landscape architect, they also feel like they have internal abilities that make them suited for this major and anticipated career. Whether it is a love for the outdoors, a concern for preserving natural beauty, or a fascination with the harmonies of living things, all such motivations are linked to the self-perception that a Naturalist ability exists. In addition, design abilities would suggest that LA students possess an ability to integrate Spatial Intelligence with this Naturalist Intelligence to logically develop a design.

Of interest to this observation is the fact that some students were found to have self-perceived abilities not related directly to design and nature. Certainly the two largest groups of students have these abilities; a large minority (41% in two smaller groups) have MIs not directly related to design and nature. The Philosophers are interested in the Verbal-Linguistic, Interpersonal, and Intrapersonal. They want to discuss, communicate, and reflect on LA in a fulfillment of their intrinsic motivations to relate to others, feel competent, and be self-determined. Although not observed initially, retrospection and reflection makes this finding unsurprising. What is very surprising, however, is that the second minority group can be identified by its Musical abilities. Although this group has similar Bodily-Kinesthetic Intelligence as the Designer, the intensity of Musical Intelligence is surprising. Further research could explore what elements explain this unique and surprising group. Is it the Pythagorean link of rhythm between music and nature? Does dexterity play a role? What about the discipline/routine of musical lessons as a child? The applications of this surprising

theme are limited only by the imagination: recruiters can target music classes, LA professors can incorporate music in the teaching/learning process, etc. Such applications again align with the theoretical concept that follows.

2.3.2.4 OBSERVATION #4: LA students anticipate autonomous support from mentors. At any given stage of acculturation with LA, students anticipate that those encouraging them to pursue a career in LA will also encourage and support their participation in the program. Such support, as defined using the integrated model, would sustain the unique intrinsic motivation of LA students (see **Observation #2**).

In Greek Mythology, Mentor was an old friend of Odysseus. Odysseus entrusted his household to Mentor when he left for war against Troy. The goddess Athena, assuming the shape of Mentor[2], became the guide for Odysseus' son, Telemachus. Being entrusted to give prudent counsel is the derivation of mentoring and the essence of autonomous support. LA students want to feel that their counselors, advisors, or mentors are authentically seeking to support them. Two mentors were identified in the data preparation: high school mentors and college mentors. In general, all LA students felt college mentors were important, yet felt the encouragement they received could be improved. High school mentors have meaningful interpretation in the comparison of two universities that offer degrees in LA. Students from PSU (which has been considered a top-5 undergraduate program for years) report stronger importance and encouragement from high school mentors than an average undergraduate LA program (WSU). As a result, these students declare their major sooner, are younger, and are more focused in their college experience.

---

[2] http://homepage.mac.com/cparada/GML/Mentor4.html

38

2.3.2.5 OBSERVATION #5: University choice constrains LA students' constructions; major choice liberates LA students' anticipations. If students first choose their university and then seek a program in LA, their anticipations and constructions will be limited by the resources available at the chosen university, constraining the student. On the other hand, if students choose to seek a degree in LA and then find a university that fits this criteria, they will have more structural support of their self-determined motives to study LA and pursue an anticipated career.

Practically, students that choose a university first, then find that it has a LA program are constrained by the university. What if the university did not offer the LA program? The students are unlikely to create a construction where they will get a degree in LA because the anticipation may not even exist. On the other hand, if a LA major is chosen first, students are liberated to have future anticipations consistent with historic anticipations.

2.3.2.6 OBSERVATION #6: Based on gender, LA students have different anticipations regarding career. Gender is an important factor with regard to any student and his/her career path. Specifically within LA, I speculate that LA students will have different anticipations of their approaching career. This is because they have gender-different motivations for seeking the major, different MI abilities, and have different constructions.

The gender differences within the program are revealing as they identify specifically how males and females have different anticipations of their future. Females have more family support, generally travel further from home to attend a university with LA, and anticipate naturalistic work more than managerial work. This is intriguing because more females have design-related abilities than nature related abilities (MI HS classes). Taken

together, it would appear that a choice to major in LA and pursue a career is more conceptual for females. They need more family support and may be pursuing an introjected career path. Further research would need to be performed to understand some of these issues, but this research suggests a unique question may exist. ASLA and others recognize that there is a gender gap, and in promotional efforts to fill the gap.

2.3.2.7 OBSERVATION #7: Students who had exposure to LA before college have more developed personality constructions, anticipations, and replications. Exposure to LA prior to college is most likely to be positive. Such exposure would arguably be encouraging and aligning with intrinsic interests. As a result, anticipations and replications will have occurred sooner for this individual. The resulting constructions will be more refined and developed, suggesting the student has a stronger sense of authentic self and is more self-determined and intrinsically motivated.

The more times anticipations are replicated or realized, the more refined the resulting construction will be. This implies that the sooner students can become aware of the LA option, the more time they will have to consider it in their mental processes. These students have: more conservative views of their career anticipations, more balanced motivations, and more support from family and landscape influences.

2.3.2.8 OBSERVATION #8: Higher reputation LA programs have students who have developed more refined constructions. Based on intrinsic motivation and the integrated model, successful LA programs with a reputation of quality education would inherently have mechanisms in place to facilitate autonomous support for their students.

This would suggest that the LA students would have more opportunities to anticipate specific future outcomes, refining their constructions.

Students from programs of higher repute generally seem to have a more refined view of their future careers, are more self-aware about why they chose the LA major, anticipate more future education in their career development, and appear to have stronger abilities in specific MIs: Verbal-linguistic, Logical-Mathematical, and Spatial-Visual.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Strategy

To understand why someone chooses to pursue a degree in LA, I used an integrated research methodology. My intent is to capture qualitative meaning; however, this is achieved by using both interpretive (coding and analysis) and quantitative tactics based around a survey instrument. Doing multiple analyses on the same data is an integral part of the chosen research methodology—a strategy of Qualitative Research, as defined by Groat and Wang (2002) identifies meaningful themes as they align with a theoretical framework. This strategy includes four key components that I will discuss in context to my research. These components of qualitative research are (1) a focus on how the respondents make sense of their own circumstances, (2) an emphasis on natural settings, (3) the use of multiple tactics, and (4) a focus on interpretation and meaning.

3.1.1 Focus on how the respondents make sense of their own circumstances

Personal constructions (a corollary from Kelly, 1955) are a basis of my theoretical lens within my larger meta-framework. This is a phenomenologically-consistent framework which captures the unique and current world views of the respondents and clusters them to find similarities or patterns. As the popular vernacular suggests, "You are unique, just like everyone else." Individuals construct views of their circumstances in a unique way, but their pattern of construction will fall in line with others' personal construction patterns.

3.1.2 An emphasis on natural settings

During my data collection, respondents were likely sitting in front of a computer at the university that they chose to attend, quite possibly within the department with which they have chosen to pursue their degree in LA and surrounded by fellow students engaged in similar activities as they explained (through a survey) why they chose this university, why they chose LA, and other questions of the sort. In short, the students who participated in this research were in their natural setting.

3.1.3 The use of multiple tactics

The use of multiple tactics strengths in the research as it provides multiple perspectives of the same data to better grasp the participants and their views. I collected only one set of data, but it will be analyzed through descriptive, interpretive, and various statistical lenses. These tactics are a means to triangulate the precise understanding of the validity of the observations—the more tactics used, the greater the certainty desired conclusions.

3.1.4 A focus on interpretation and meaning

Lee (1991) states that an "interpretive approach maintains that the methods of natural science are inadequate to the study of social reality. People (and the physical and social artifacts that they create) create and attach their own meanings to the world around them and to the behavior that they manifest in that world." Interpretation is the key player in grounded theory (Glaser & Strauss, 1998) which I used to focus on meaning. "In grounded theory, the researcher seeks to enter a setting without preset opinions or notions, lets the goings-on of the setting determine the data, and then lets a theory emerge from that data. Once the theory is proposed, other similar settings can be studied to see if the emergent

theory has explanatory power" (Groat and Wang, 2002). See **Figure 3.1** for my qualitative

research diagram (developed from Wang, 2007) including my research strategy and tactics.

3.2 Research Tactics and Results

As mentioned earlier, the use of multiple tactics is vital to validate my research. I used

a survey instrument to gather data and various data analysis methods to evaluate it. Building

a strong theoretical foundation and using literature from related research was also important

to this study (as outlined in **chapter 2**). My research tactics are detailed below.

Figure 3.1
Qualitative Research Diagram
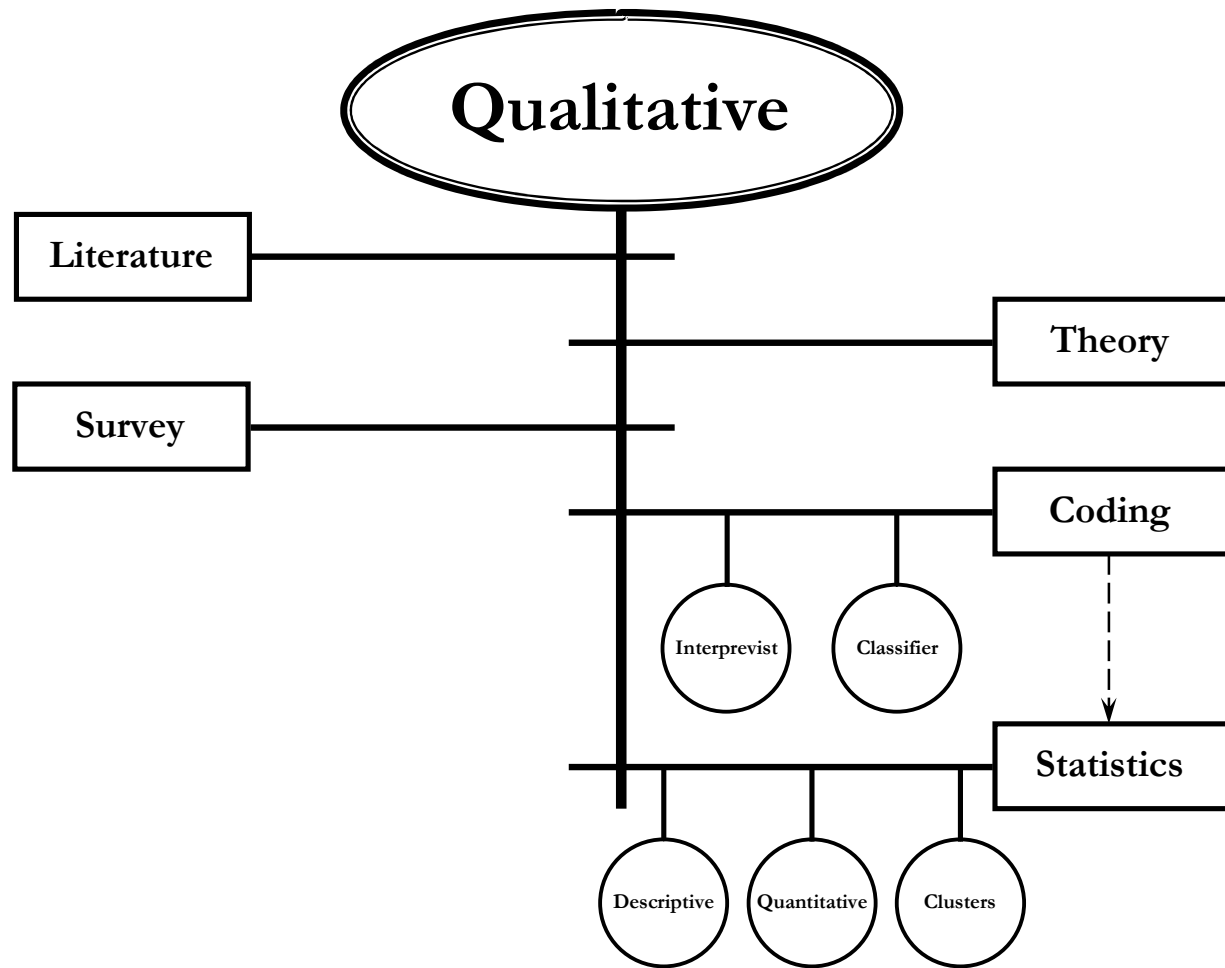
3.2.1 Survey Instrument

Based on my overall research question, a survey was developed and refined to capture data consistent with my Qualitative Strategy (see **Appendix A**). Once the survey was designed in an online format (using SurveyMonkey), I pilot tested it with a few students, received feedback, and made improvements. The sample was achieved through the following technique: All 46 programs offering an ASLA-accredited bachelors degree (within the United States) were contacted via email after a search of the internet for each university's LA department head. Three follow-up emails were sent during the time the survey was active to encourage and solicit a higher response rate. From my email communications with department heads, I felt supported in efforts of having a successful survey. Many took an interest in and even requested the findings of this research. I received responses from 26 universities for a 57% response rate. At the university level, I encouraged the departments to distribute the survey to all undergraduate students majoring in LA. I was unable to ascertain exactly how many students received the invite, but I did receive 358 responses, of which 331 were usable. In sum, this convenient, self-selection sample represents more than 300 students who are majoring in LA at 26 universities in 24 states throughout the United States.

3.2.2 Statistical Analyses, Results, and Themes

As stated, several different research approaches and statistical techniques were used to analyze the data and to help fully appreciate the nuances of the key themes associated with choosing a major in LA. As such, data analysis is considered an integral tactic of the qualitative research design and does not stand alone as it does in positivist research. This section will be outlined as follows: (1) general summary descriptions (of the sample and

responses), (2) simple multivariate statistics of factors for a choice of university and anticipated career, (3) multivariate analysis of multiple intelligence factors (favorite high school classes and other considered majors), (4) multivariate analysis of interpretive analysis of key open-ended responses (awareness, goals, choice, motivation, and passion) as well as descriptives of all open-ended coded responses, (5) and multivariate analysis of geographic fit based on university and hometown characteristics as defined by the appropriate ZIP codes which were matched to a secondary dataset provided by the United States Census Bureau.

3.2.2.1 Summary Description of Data. Contained below is a descriptive and general summary of my data (see also ***Figure 3.2***). These descriptives are based directly from the results of the survey instrument and simple correlation analysis (which will come later in the chapter). This section is outlined as follows: (1) sample characteristics (attributes of the sample as a whole), (2) home characteristics, (3) parents' characteristics, (4) school interest characteristics (other than LA), (5) university characteristics, (6) student intention characteristics, (7) landscape architecture characteristics, and (8) correlations of descriptive data.

3.2.2.1.1 Sample Characteristics. The median respondent took 11 minutes to complete the survey and answered 58 elements. Of those sampled, the average age was calculated to be approximately 23 years old (M = 23.0, SD = 5.33). I calculated this from the question of when they graduated from high school (average was between 2004 and 2005) assuming age 18 at graduation. Based on this calculation, more than 60% are estimated to be between the ages of 20 and 23 with 5 respondents over the age of 40. About 62% were males which

Figure 3.2

Descriptive Statistic Summary

Statistic	Total	
Age	23	Years old
Gender	62%	Male
	38%	Female
Hometown	53%	Suburban
	32%	Rural
	13%	Urban
Parents' Income	$79,000	(mean)
Parents' Education (4-year degree)	54%	Father
	50%	Mother
	64%	At least one
	40%	Both
Other Considered Majors	17%	Architecture
	9%	Engineering
	9%	Business
	8%	Art/Graphic Ds.
Minor	30%	Have a minor
Favorite High School Classes	14%	Art
	12%	Math
	11%	History
	10%	English
	6%	PE
	5%	Drafting
	5%	Biology
Univ. Location	80%	Same state
Home to Univ.	93	Miles (median)
More Education	46%	Of respondents
Anticipated Work	70%	Parks/recreation
	63%	Urban design
	53%	Residential design
	52%	Design/build
	51%	Eco. restoration
Aware of LA	44%	During high school
	44%	After high school
	12%	Before high school
Declared LA as Major	51%	Freshmen
	36%	Sophomores
Transfer into LA	32%	From other major
Choice Univ. vs. LA	52%	Chose university first
	48%	Chose LA first
University Choice Factors	74%	Univ. location
	52%	Univ. reputation
	42%	LA dept. reputation
	41%	Financial
	40%	Family/friends

suggests LA programs have more men than women ($\chi2$ (1) = 16.86, p < .01). About 67% of

women and 61% of men fall between the ages of 20 and 23, but there was no significant

difference in age (men: M = 22.93, SD = 4.43; women: M = 22.39, SD = 5.47; Welch's

t(202) = -0.90, p = .37 NS); however, it does appear that the age of men is more upwardly

skewed than women as seen in **Figure 3.3**. The highest frequency of respondents were

seniors (30%) followed by juniors (27%), 5th year students (19%), sophomores (16%), and

freshmen (9%). The average years into the program was about 3.4 or between junior and

senior years (M = 3.35, SD = 1.20).

Figure 3.3
Boxplot: Age by Gender
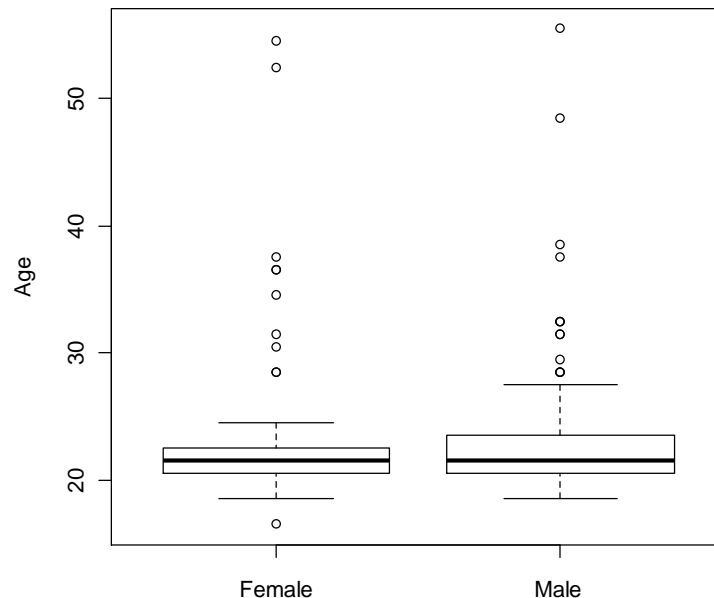
3.2.2.1.2 Home Characteristics. Of the respondents, about 98% described their hometown

as within the United States which suggests a small number of international students in

undergraduate LA programs. Two respondents reported being from Colombia; one

respondent each from the following countries: Australia, China, Dominican Republic, and

Thailand. There appears to be a difference in the hometowns as reported respondents: 53%

reported suburban, 32% rural, and 13% urban ($\chi2$ (2) = 79.98, p < .01).

3.2.2.1.3 Parents' Characteristics (Income and Education). About 20% of respondents reported that they did not know their parents combined annual income, but those who did know reported the following numbers: less than $20,000 (3%), $20,000 to $39,999 (8%), $40,000 to $59,999 (13%), $60,000 to $79,999 (11%), $80,000 to $99,999 (14%), and more than $100,000 (28%). A conservative average combined annual income can be calculated using the categorical midpoints ($10K, $30K, $50K, $70K, $90K, $110K) for those who knew the combined income (M = $79K, SD = $31K, median = $90K). It appears that the respondents come from households with above average income levels (compare mean to national median of $50K: $t(250) = 14.9$, $p < .01$). Based on census-level data, this would correlate to a two-income household (median $91K), although respondents were not specifically asked if both parents work.

About 54% of the respondents reported that their father had attained at least a 4-year college degree; about 50% of the respondents reported that their mother had attained at least a 4-year college degree; about 64% of the respondents reported that at least one parent had attained at least a 4-year college degree; about 40% of the respondents reported that both parents had attained at least a 4-year college degree. In general, it appears that LA students have well-educated parents. The education level of the father appears to have a slightly stronger correlation ($r = .424$) on income than the education level of the mother ($r = .380$). Partial correlations verify this observation ($r_{income.father|mother} = .28$, $p < .01$; $r_{income.mother|father} = .20$, $p < .01$).

3.2.2.1.4 School Interest Characteristics. About 70% of the respondents reported that they did not have a minor. This may suggest the difficulty of coursework perceived by

students within the LA major. Of the 30% who had a minor, the highest frequency was horticulture (29%) followed by design and planning related fields (20%). It appears that the minors of LA students are closely aligned with their current major.

3.2.2.1.5 University Characteristics. Of those sampled, 80% attended a university in the same state as their hometown while 20% attended a university outside their home state. The median distance between respondents hometown and the university is about 93 miles (median = 93.0; inter-quartile range = 16 to 208 miles). This suggests that the availability of LA programs in the home state of the respondents is relevant. Participants were enrolled in LA programs throughout the country. Universities with at least 10 (3%) respondents included Pennsylvania State University (n = 47, 14.4%), Washington State University (n = 46, 14.1%), Cal-Poly San Luis Obispo (n = 24, 7.4%), Mississippi State University (n = 18, 5.5%), University of Georgia (n = 18, 5.5%), Arizona State University (n = 16, 4.9%), Ohio State University (n = 15, 4.6%), Utah State University (n = 15, 4.6%), University of Arkansas (n = 14, 4.3%), University of Florida (n = 14, 4.3%), University of Kentucky (n = 13, 4.0%), and Oklahoma State University (n = 10, 3.1%). See ***Figure 3.4*** for a complete list of all schools that had participating students along with their participation rates.

3.2.2.1.6 Student Intention Characteristics. About 54% of respondents did not anticipate education beyond their 4-year degree. Of the 46% who did anticipate additional education, 91% anticipated a master's degree and 9% anticipated doctoral or professional degrees. It appears that a vast number of LA students anticipate attending graduate school.

About 70% of students reported that they anticipate working designing parks and recreation areas during their career. Other anticipated types of work included: urban design

Figure 3.4

Schools with Participating Students

School	n	%
Pennsylvania State University	47	14.4
Washington State University	46	14.1
Cal-Poly San Luis Obispo	24	7.4
Mississippi State University	18	5.5
University of Georgia	18	5.5
Arizona State University	16	4.9
Ohio State University	15	4.6
Utah State University	15	4.6
University of Arkansas	14	4.3
University of Florida	14	4.3
University of Kentucky	13	4.0
Oklahoma State University	10	3.1
Louisiana State University	9	2.8
Iowa State University	8	2.5
Michigan State University	7	2.1
University of Maryland	7	2.1
Virginia Tech University	7	2.1
Philadelphia University	6	1.8
University of Connecticut	6	1.8
University of Nebraska	5	1.5
University of Nevada Las Vegas	5	1.5
University of Washington	5	1.5
North Carolina A&T	4	1.2
North Dakota State University	3	0.9
Texas Tech University	3	0.9
University of Massachusetts	1	0.3
Total	**326**	**100**

(63%), residential design (53%), design/build (52%), ecological restoration and preservation (51%), land development (37%), industrial and commercial design (37%), natural resource planning and policy (36%), land planning and policy (36%), entrepreneurial (24%), academic (21%), and managerial (15%) work. About 9% anticipated doing something other than the listed types of work. This suggests that most LA students anticipate using their degree to work in many different parts of the field.

3.2.2.1.7 Landscape Architecture Characteristics. About 44% of respondents reported
that they first learned of LA as a field they could study at college during high school; about
44% did not know until after high school; the remaining 12% knew before high school. This
suggests a lack of knowledge of LA prior to college enrollment. Of those sampled, about
51% declared their major in LA as a freshman and about 36% as a sophomore. This suggests
that many students initiate their study of LA after beginning college. About 32% of students
transfer into LA from another major. The approximate 20% variation between post-
freshman declared majors and those transferring from other majors may suggest students
transferring from an undeclared major.

Students were asked to describe how their social influencers encouraged their
decision to major in landscape architecture and how important that encouragement was in

Figure 3.5
Importance/Performance Graph
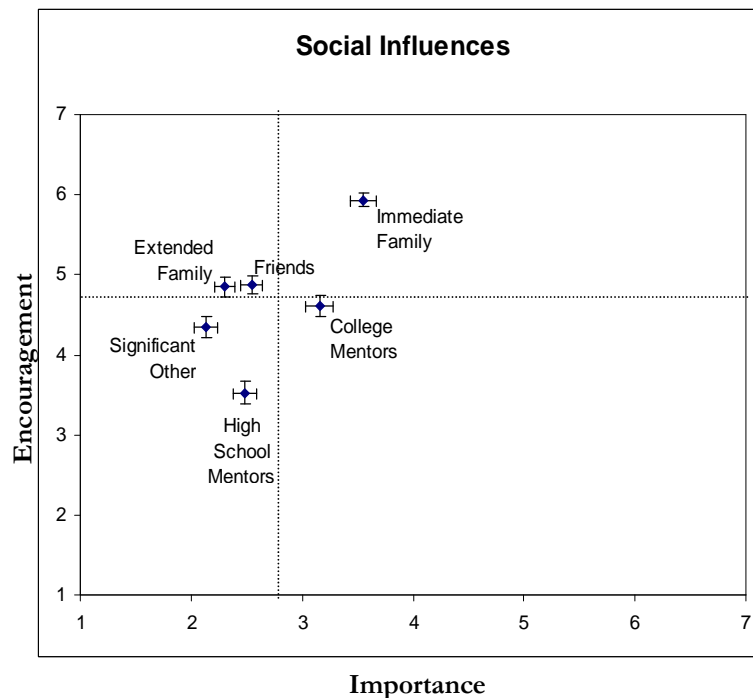
their major choice. Based on these factors, a simple importance/performance graph can be created, as seen in *Figure 3.5*. On the x-axis, the average importance scores are graphed, and correspondingly, the average encouragement score. The absolute scores suggest that LA students generally feel encouraged by their social influencers yet find it somewhat unimportant in the choice they have made. Relative scores within the influencers can be understood by creating a vertical and horizontal line based on the overall midpoints of encouragement and importance. Students cited immediate family as the most important in influence on their decision to major in LA, and felt that this group also encouraged them at an appropriately high level. The top-right quadrant represents a good fit. Relative importance is in order: Immediate family (M=3.55), College Mentors (M=3.15), Friends (M=2.54), High School Mentors (M=2.49), Extended Family (M=2.30), and Significant Other (M=2.14). Overall, this graph suggests that students may be self-determined, as their social influencers are all below the scale midpoint (1-7, has a midpoint of 4). They are autonomous. In addition, the relative measures suggest that of all of the influencers, College Mentors are the second most important, yet students feel the encouragement they receive from this influencer is below average. This is a place for improvement.

Students were also asked how they went about choosing their university and major. Around 52% of respondents reported that they chose their university first, and then chose to major in LA; 48% chose to major in LA before finding a university that offered it. This could suggest that over half of potential LA students will study LA only because the school they chose to attend offers it. About 74% of students reported the location of the university as a factor that led them to choose their current university to study LA. Other factors

included: reputation of current university (52%), reputation of current LA department (42%), financial considerations (41%), influence of family and/or friends (40%), setting of current university (33%), reputation of current LA faculty (23%), and current university recruitment (8%). This implies that the location of the university is the factor most important to most respondents when it comes to choosing a university at which to study LA.

3.2.2.1.8 Correlations of Descriptive Data. Correlations represent relationships between different variables. Key correlations of the descriptive data are reported in ***Figures 3.6-3.9*** and ***Figure 3.10*** shares the variable meaning to these figures. The first figure (***Figure 3.6***) describes socio-economic relationships between education levels and income. As described previously, partial correlations revealed that a father's education level influences income more strongly than a mother's education level. Although it was not asked, the remainder of this table may suggest that LA students come from traditional families. Specifically, income is more strongly correlated with at least one parent with a four-year college degree (Least) than it is with both parents with a four-year degree (Both). The second figure (***Figure 3.7***) describes relationships between awareness, transfers, university selection, income, year in program, year major was declared, and educational levels of parents. This suggests that LA students who choose their major first are younger in the program, declared earlier, and are aware much sooner than LA students who choose their university first. Transfer students generally choose their universities first and as a result enter later in their program, declare later, and are aware much later of LA as a field of study.

Figure 3.6

Correlation: Education and Income of Parents

	Father	Mother	Income	Both
Father	1			
Mother	0.53***	1		
Income	0.42***	0.38***	1	
Both	0.68***	0.69***	0.32***	1
Least	0.72***	0.69***	0.36***	0.60***

*** p < .001; ** p < .01; * p < .05; + p < .10

Figure 3.7

Correlation: Multiple Variables

	Year	Aware	Major	University	Transferred	Income	Father
Year	1						
Aware	0.09	1					
Major	0.06	0.29***	1				
University	-0.15*	-0.33***	-0.24***	1			
Transferred	0.17*	0.36***	0.46***	-0.31***	1		
Income	-0.08	-0.06	-0.08	-0.02	-0.13*	1	
Father	-0.01	-0.12+	-0.15*	-0.07	-0.13+	0.43***	1
Mother	-0.07	0.01	-0.08	-0.20**	-0.06	0.38***	0.52***

*** p < .001; ** p < .01; * p < .05; + p < .10

Figure 3.8 describes correlations among variables related to university-level factors. Location and finances are positively correlated whereas finances and LA faculty reputation are negatively correlated. Taken together, this can partially help identify the interactions of these different variables. *Figure 3.9* describes correlations among variables based on anticipated careers. Significant relationships in the table are rather consistent across all variables, so other statistical tactics should be implemented to appreciate how LA students can be classified based on similar scores.

Figure 3.8

Correlation: Factors in Choice of University to Study Landscape Architecture

	Recruited	UnivRep	Location	Setting	LA Faculty	LA Dept	Financial
Recruited	1						
UnivRep	-0.2	1					
Location	0.09+	0.15**	1				
Setting	-0.01	0.30***	0.21***	1			
LA Faculty	-0.08	0.33***	0.05	0.06	1		
LA Dept	-0.08	0.33***	0.08	0.09+	0.46***	1	
Financial	0.09	-0.01	0.19***	0.06	-0.14*	-0.02	1
FamFriends	0.05	0.21***	0.09+	0.09	0.05	0.08	0.09

*** p < .001; ** p < .01; * p < .05; + p < .10

Figure 3.9

Correlation: Anticipated Types of Work

	Acad.	DesBld	Entrep	Mngr	NatRes	Urban	LndDev	Com	Res	Ecol	LndUse
Academic	1										
DesBld	0.01	1									
Entrep	0.06	0.23***	1								
Mngr	0.15**	0.18**	0.35***	1							
NatRes	0.12	0.08	0.07	0.15**	1						
Urban	0.17**	0.07	0.05	0.08	0.19***	1					
LndDev	0.06	0.18**	0.16**	0.23***	0.26***	0.16**	1				
Com	0.02	0.19***	0.12*	0.12*	0.12*	0.22***	0.20***	1			
Res	-0.02	0.35***	0.26***	0.17**	0.10+	0.16**	0.20***	0.32***	1		
Ecol	0.17**	0.22***	0.14**	0.16**	0.47***	0.17**	0.24***	0.14*	0.09	1	
LndUse	0.25***	0.08	0.04	0.12*	0.26***	0.11*	0.33***	0.12*	-0.05	0.26***	1
PrkRec	0.07	0.21***	0.14*	0.08	0.23***	0.32***	0.23***	0.21***	0.29***	0.31***	0.13*

*** p < .001; ** p < .01; * p < .05; + p < .10

3.2.2.2 Simple Multivariate Analysis. As discussed, many different statistical techniques will be applied to the data to help identify key themes which sets this research apart from prior studies. Cluster analysis, one form of multivariate analysis, "involves categorization: dividing a large group of observations into smaller groups so that the observations within each group are relatively similar (i.e., they possess largely the same characteristics) and the observations in different groups are relatively dissimilar" (Lattin et al, 2003). In general, it allows us to take correlated data and find similarities. We can find similarities at the question-

level or we can find similarities at the respondent-level. Reducing data at the question-level

can provide different insights from reducing data at the respondent-level. The former

clarifies how responses are similar across all respondents whereas the latter identifies similar

respondents across all relevant responses. Many different clustering techniques exist (Xu and

Wunsch, 2005), but two techniques were chosen for their robustness to cluster at the

Figure 3.10
Variable Meanings for Figures 3.6 – 3.9

Figure	Variable	Meaning
3.5	Father	Father has a 4-year college degree
	Mother	Mother has a 4-year college degree
	Income	Combined parents' annual income
	Both	Both parents have at least a 4-year college degree
	Least	At least one parent has a 4-year college degree
3.6	Year	Year in the landscape architecture (LA) program (1, 2, 3, 4, 5)
	Aware	When became aware of LA (3 groups: before, high school, after)
	Major	When declared major as LA (1, 2, 3, 4)
	University	Which chosen first: university to attend (1) or to major in LA (2)
	Transferred	Transfer into LA from another major (no = 0, yes = 1)
	Income	Combined parents' annual income as increasing levels
	Father	Father has a 4-year college degree (increasing levels of education)
	Mother	Mother has a 4-year college degree (increasing levels of education)
3.7	Recruited	Student recruited by the university
	UnivRep	Reputation of the university
	Location	Location of the university
	Setting	Setting of the university (rural/urban)
	LA Faculty	Reputation of current landscape architecture faculty
	LA Dept	Reputation of current landscape architecture department
	Financial	Financial considerations
	FamFriends	Influence of family/friends
3.8	Academic	Academic
	DesBld	Design/Build
	Entrep	Entrepreneurial
	Mngr	Managerial
	NatRes	Natural Resource Planning/Management
	Urban	Urban Design
	LndDev	Land Development
	Com	Industrial/Commercial Design
	Res	Residential Design
	Ecol	Ecological Restoration/Preservation
	LndUse	Land Use Planning/Policy
	PrkRec	Park/Recreation Design

question-level and the respondent-level. For question-level cluster, a multi-scale, multi-step

procedure known as "pvclust" is used as it can identify the stability of the question-level

clusters through a unique bootstrapping procedure (Shimodaira, 2004). For respondent-level

cluster, a model-based technique is used (Fraley and Raftery, 2007; Vos and Evers, 2004) as

it tries to probabilistically identify normal groups from the data. The model assumes that the

groups are normally distributed and the scaled data is a mixture of different sizes of normal

groups.

3.2.2.2.1 Factors of Choice. With this in mind, respondents were asked to identify factors

(checkboxes) on the question "Which factor(s) led you to choose your current university to

study landscape architecture?" To understand how respondents are similar across these

relevant responses, multivariate analysis at the respondent-level will be formed using model-

based cluster analysis. The results of such analysis will be identifiable groups or clusters of

respondents who answered the question similarly. **Figure 3.11** summarizes the results by

describing the average scaled responses for each cluster. The best fit is a spherical, equal-

volume model with seven clusters. Although classified as equal volume, these models do not

suppose that the seven clusters are of the same size. In this case, 25 respondents

probabilistically best fit into Cluster 1 (representing about 8% of the sample). The key

feature of this cluster is that students predominantly selected the recruitment option as the

main factor for choosing the university. The second cluster (n= 69, 21% of the sample) can

be identifiable as the group who chose setting mostly as a factor for university selection. The

remaining clusters are as follows: Cluster 3 (n=28, 8% of the sample) with strong financial

and some location rationale; Cluster 4 (n=64, 16% of the sample) with some location

rationale (but no strong financial rationale); Cluster 5 (n=64, 20% of the sample) with

location clearly not be part of the rationale; Cluster 6 (n=66, 20% of the sample) with

reputational rational (reputation, LA department, LA faculty); and Cluster 7 (n=25, 8% of

the sample) strong rationale due to finances and family and friends.

Figure 3.11

Clusters: Factors of University Selection
Which factor(s) led you to choose your current university to study landscape architecture?
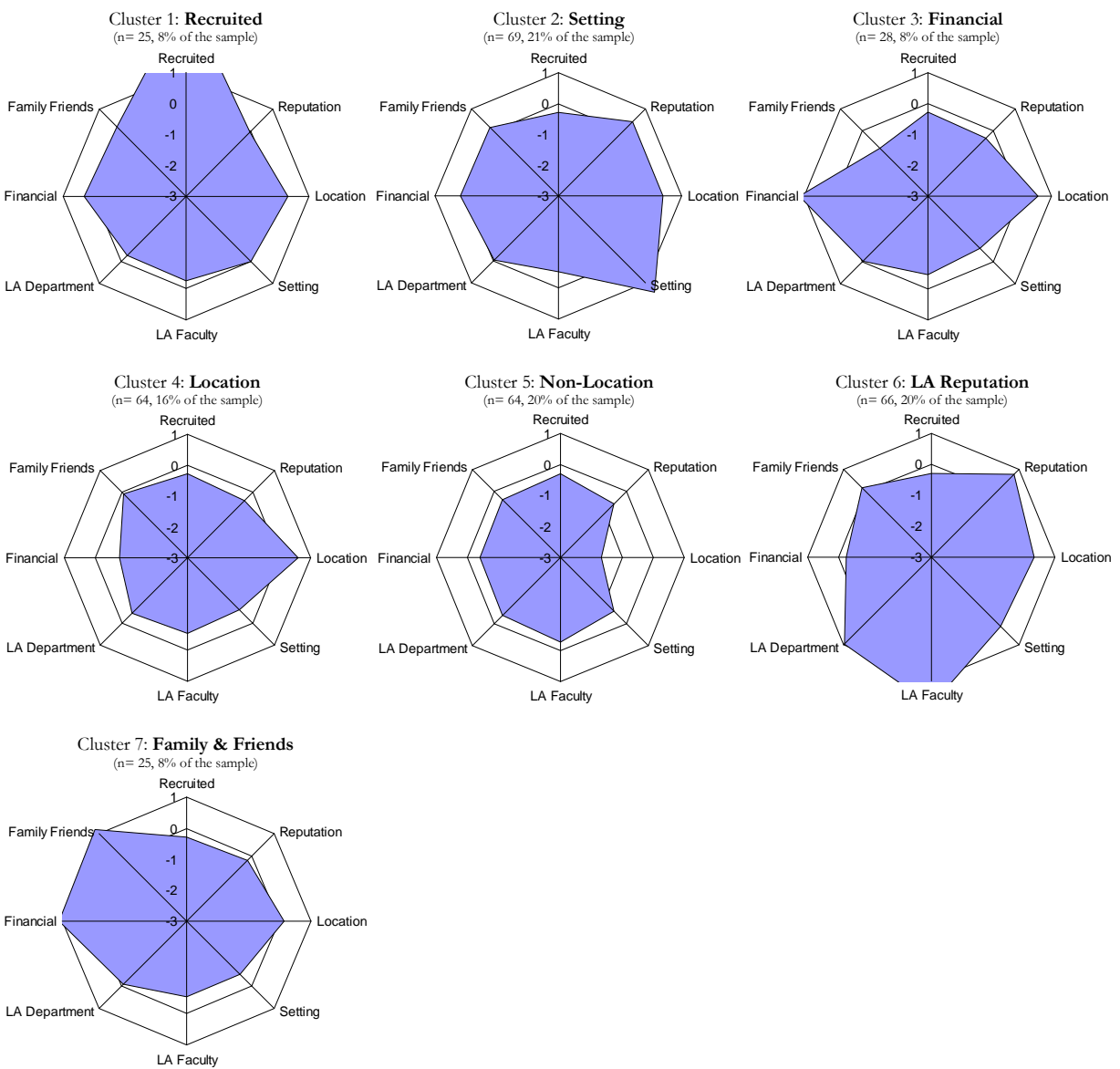
Model-based Clustering: a spherical, equal-volume model with 7 clusters

3.2.2.2.2 Career Anticipations. Similar model-based cluster analysis was prepared for the question regarding career anticipation: "What type(s) of work do you anticipate doing in your career?" Similar to the previous clustering, the best fit is also a spherical, equal-volume model, but this time with 6 clusters as seen in ***Figure 3.12***: Cluster 1 (n=50, 15% of the sample) represents those anticipating a "Naturalist" career (emphasis on Natural Resources, Ecological Factors, Parks & Recreation, not Residential/Commercial nor Entrepreneurial); Cluster 2 (n=48, 15% of the sample) represents the anticipated "Entrepreneurial" career; Cluster 3 (n=43, 13% of the sample) represents the anticipated "Academic" career; Cluster 4 (n=49, 15% of the sample) represents a group of respondents that did not really fully

Figure 3.12

Clusters: Anticipated Careers of Landscape Architecture Students
What type(s) of work do you anticipate doing in your career?
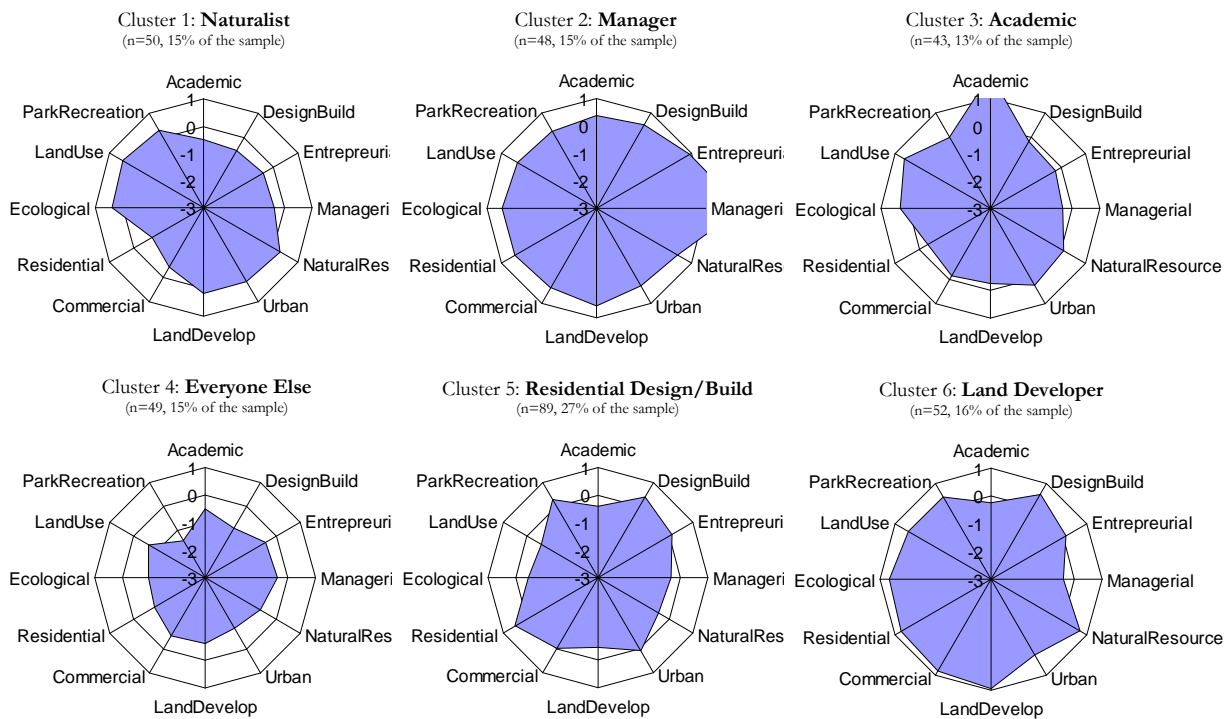
Model-based Clustering: a spherical, equal-volume model with 6 clusters

consider the question; Cluster 5 (n=89, 27% of the sample), the largest group, represents those anticipating a "Residential Design/Build" career; and Cluster 6 (n=52, 16% of the sample) represents those anticipating a "Land Development Design/Build" career. Taken together, these clusters give us interesting insights into some anticipations of those pursuing a degree in landscape architecture and can be mapped to the personality theory of constructs (differences in anticipations).

3.2.2.3 Multiple Intelligences (clusters). In order to try and capture differences in Multiple Intelligences (self-reported valued abilities) two groups of questions are considered. First, students were asked to report their three favorite high school classes. In the second, students were asked to list other majors they considered (include minors, if they have one). The former captures some self-perceived strengths based on the assumptions that their favorite classes were classes students felt competent at (SDT, similar to self-efficacy) and can be considered an Internal Influence on studying LA. The latter captures other options which align with External and Extrinsic influences. The process to build Multiple Intelligence scores was not simple. Six individuals (called classifiers) were found, were trained on the process of selecting appropriate intelligences for a given response, and selected one or more intelligence per response. These scores were averaged across classifiers then were averaged across respondent answers. More detail follows.

Due to the open-ended nature of these questions it was first necessary to combine responses that were similar. For example, if one respondent put "United States History" as a favorite high school class and another put "World History" then they were each combined into "History." However, the most common reasons for combining responses were

misspellings, case differences, abbreviations, and variances in text. For instance, the combined response of "Math" could have been written by respondents in a number of different ways, such as "mathematics, MATH, Mathametics, math, Arithmetic, Calc, Trig," and so on. The responses to the questions were then categorized in context of the eight intelligences of Multiple Intelligences by the classifiers through an online admin tool. For example, if "Architecture" was another considered major then each classifier (based on their training) decided which intelligences someone who had an interest in architecture would maintain. Each intelligence was considered by each classifier as either yes or no for each response (a check in the box as yes, no check as no). For instance, if a respondent has a minor of "Spanish" then a classifier who considers this as embodying only linguistic and logical-mathematical intelligences would select just the boxes by those intelligences indicating a yes and a no by not selecting the other six boxes.

After each classifier determined a multiple intelligence sorting for all responses to each question, I then averaged the classifiers to get a percentage of intelligence for each response. For example, regarding intelligences for math, 17% of classifiers checked Linguistic Intelligence as yes, 17% checked Musical, 100% Logical-Mathematical, 67% checked Spatial, 0% checked Bodily-Kinesthetic, 0% checked Interpersonal, 0% checked Intrapersonal, and 0% checked Naturalist (see **Figure 3.13** for more examples). After the averages were found per response, the individual respondents were given an average of these averages based on their multiple responses per question (i.e. each respondent gave three responses to favorite high school classes; these three classes were averaged). Thus each

62

Figure 3.13

Examples: Classifier Avg. Favorite Classes

Response	Intelligence	% Yes
Math	Linguistic	17
	Musical	17
	Logical-Mathematical	100
	Spatial	67
	Bodily-Kinesthetic	0
	Interpersonal	0
	Intrapersonal	0
	Naturalist	0
Art	Linguistic	17
	Musical	17
	Logical-Mathematical	0
	Spatial	100
	Bodily-Kinesthetic	33
	Interpersonal	0
	Intrapersonal	33
	Naturalist	17
English	Linguistic	100
	Musical	0
	Logical-Mathematical	0
	Spatial	17
	Bodily-Kinesthetic	0
	Interpersonal	33
	Intrapersonal	67
	Naturalist	0
Biology	Linguistic	17
	Musical	0
	Logical-Mathematical	66
	Spatial	17
	Bodily-Kinesthetic	0
	Interpersonal	0
	Intrapersonal	17
	Naturalist	100

individual respondent received a multiple intelligence summary based on multiple responses

(three high school classes, three majors, and/or minor(s)).

The six classifiers vary in their backgrounds and qualifications for this task. All are

college-educated (and as such have an understanding of high school classes and college

majors) within the following fields: Business, Chemical Engineering, Elementary Education, High School Education, Horticulture, and Sociology. Each became fully qualified for classifying the data after being trained on the Theory of Multiple Intelligences (see *Appendix E*).

3.2.2.3.1 Favorite High School Classes. Figure 3.14 shows the question-level clustering of the classified responses across all respondents. As seen in the dendrogram, certain elements aggregate: Interpersonal and Verbal with Intrapersonal, followed by Logical-Mathematical with Naturalist and finally Musical and Bodily Kinesthetic with Spatial-Visual. These three clusterings could represent three competency perceptions of LA students; however, at the question-level, further insights are limiting, except maybe to compare this dendrogram with the "major" dendrogram (which I will do later). To find common themes, a model-based clustering at the respondent-level will be implemented.

Figure 3.14
Clusters: Intrinsic Multiple Intelligences
Question-Level: Favorite HS Classes
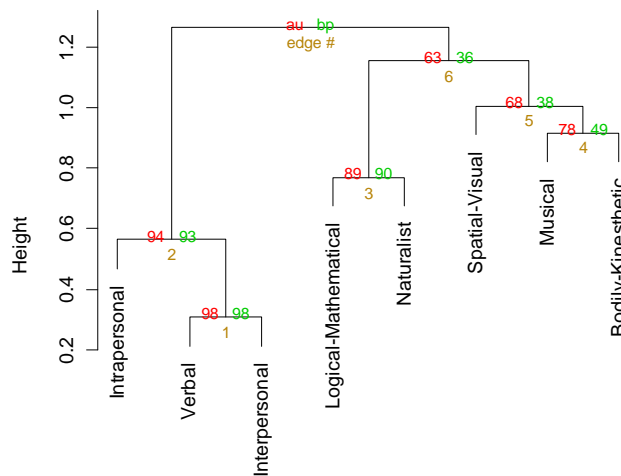
Bootstrapped Hierarchical Clustering

The best fit is an ellipsoidal, equal-shape model with four interpretable clusters as seen in **Figure 3.15**. Cluster 1 (n=92, 28% of the sample) has high scores on Spatial-Visual, Bodily-Kinesthetic, Logical-Mathematical and can be interpreted as the "Designer" LA students based on favorite high school classes; Cluster 2 (n=98, 30% of the sample) has high scores on the Naturalist Intelligence and can be interpreted as the "Naturalist" LA students; Cluster 3 (n=63, 19% of the sample) interestingly contains high scores on Musical and relatively high scores on Bodily-Kinesthetic and can be interpreted as the "Musician" LA

Figure 3.15

Clusters: Intrinsic Multiple Intelligences
Respondent-Level: Favorite HS Classes
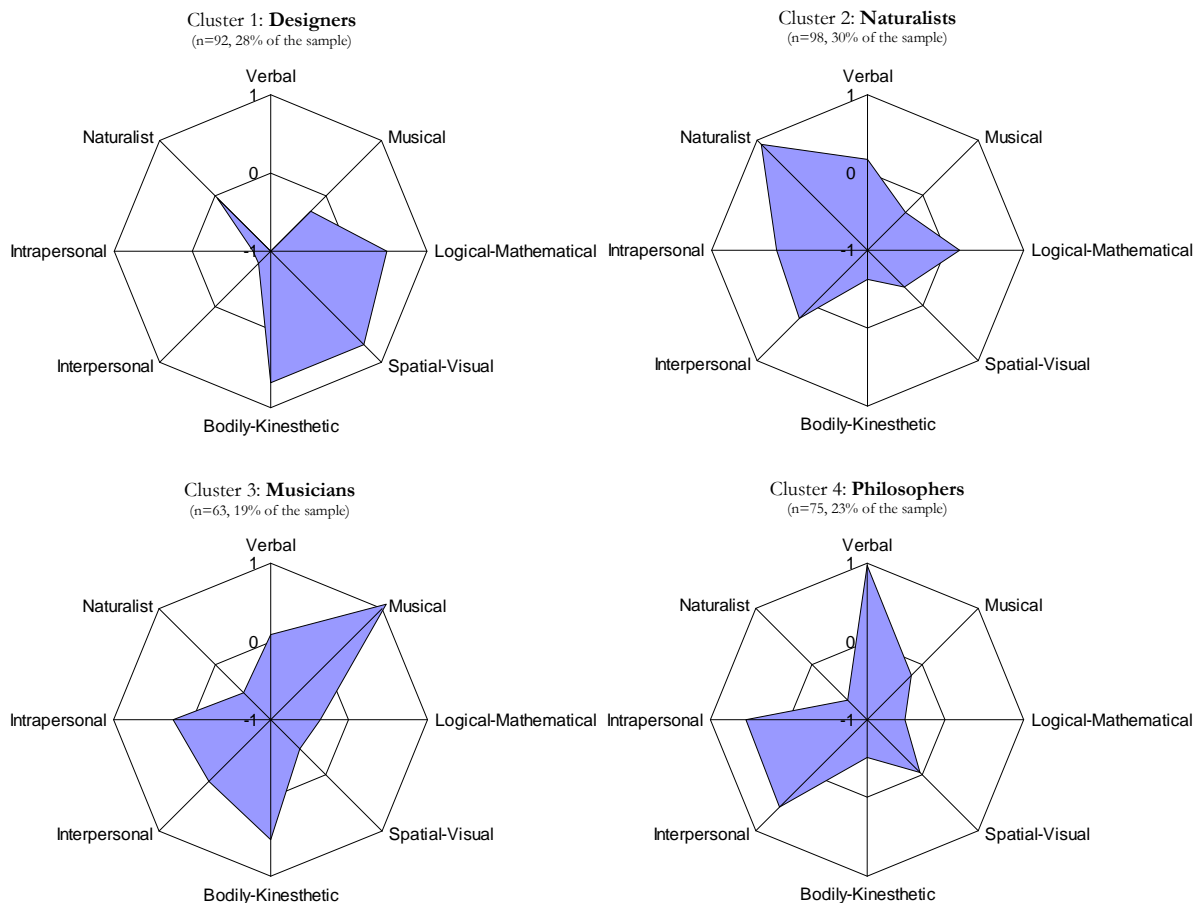
Model-based Clustering: ellipsoidal, equal-shape model with 4 interpretable clusters

students; and Cluster 4 (n=75, 23% of the sample) has high scores on the Verbal Intelligence and relatively high scores on Interpersonal and Intrapersonal and can be interpreted as the "Philosopher" LA students (those who like to talk, think, reflect).

3.2.2.3.2 Majors and Minors. Figure 3.16 shows the question-level clustering of the classified responses across all respondents. As seen in the dendrogram, certain elements aggregate: Interpersonal and Verbal with Intrapersonal, followed by Musical and Bodily Kinesthetic and finally Logical-Mathematical with Spatial-Visual and Naturalist. These three clusterings are slightly different from the "favorite high school" dendrogram above as the Spatial-Visual element aggregates differently. To find common themes, a model-based clustering at the respondent-level will be implemented.

The best fit is an ellipsoidal, equal-volume and equal-shape model with four interpretable clusters as seen in **Figure 3.17**. The interpretation of the clusters can be argued to be very similar to the results for favorite high school classes. Cluster 1 (n=115, 36% of the

Figure 3.16
Clusters: Extrinsic Multiple Intelligences
Question-Level: Other Considered Majors

Bootstrapped Hierarchical Clustering

66
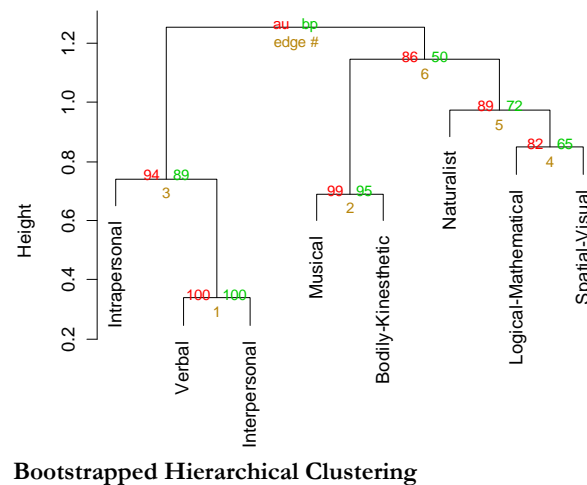
Figure 3.17
Clusters: Extrinsic Multiple Intelligences
Respondent-Level: Other Considered Majors
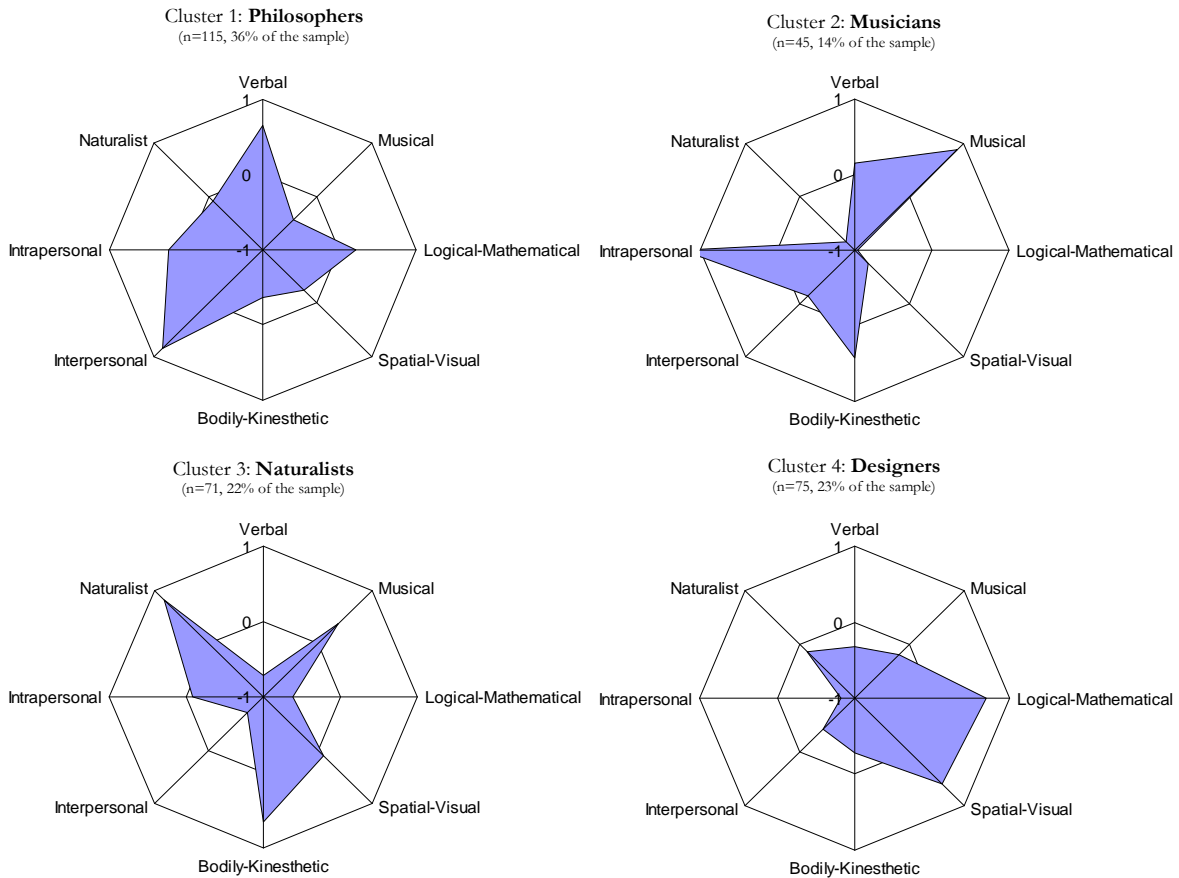
Cluster 1: **Philosophers** (n=115, 36% of the sample)

Cluster 2: **Musicians** (n=45, 14% of the sample)

Cluster 3: **Naturalists** (n=71, 22% of the sample)

Cluster 4: **Designers** (n=75, 23% of the sample)

Model-based Clustering: ellipsoidal, equal-volume and equal-shape model with 4 interpretable clusters

sample) has relatively high scores on the Verbal , Interpersonal and Intrapersonal and can be interpreted as the "Philosopher" LA students based on other major considerations and current applicable minor; Cluster 2 (n=45, 14% of the sample) interestingly also has high scores on Musical and Intrapersonal and can be interpreted as the "Musician" LA students; Cluster 3 (n=71, 22% of the sample) has high scores on the Naturalist Intelligence and relatively high scores on Bodily-Kinesthetic and Musical and can be interpreted as the "Naturalist" LA students; and Cluster 4 (n=75, 23% of the sample) has high scores on

Spatial-Visual and Logical-Mathematical and can be interpreted as the "Designer" LA students.

3.2.2.3.3 Similarities and Differences. Pairwise correlations demonstrate that at the multiple intelligence level, some amounts of correlations, but at the clustering-level little if any correlation is present (see ***Figure 3.18***). This would suggest that there may be differences between "favorite high school classes" and "other considered majors"—the former represents intrinsic competencies whereas the latter represents anticipations of what the external world may require. ***Figure 3.19*** contains a frequency table that indicates the number of respondents that fit within each of the clusters for both favorite high school classes and other considered majors.

Figure 3.18
Multiple Intelligences: Favorite High School Classes and Other Considered Majors

Majors

HS Classes	V	M	L	S	B	E	I	N
V	0.22***	0.02	-0.09	-0.12*	-0.07	0.11*	0.13*	0.01
M	-0.03	0.14*	-0.05	0.04	-0.02	-0.05	-0.05	0.01
L	-0.20***	-0.05	0.15**	0.11+	0.00	-0.16**	-0.10+	0.04
S	-0.20***	0.06	0.03	0.22***	0.07	-0.13*	-0.11*	-0.02
B	0.00	0.00	0.03	-0.08	0.12*	0.16**	0.02	-0.17**
E	0.22***	-0.02	-0.07	-0.16**	0.01	0.16**	0.12*	-0.05
I	0.11*	0.07	-0.12*	-0.02	-0.07	0.04	0.08	0.06
N	-0.01	-0.10+	-0.06	-0.07	0.00	-0.06	0.05	0.15**

*** p < .001; ** p < .01; * p < .05; + p < .10

V: Linguistic-Verbal Intelligence B: Bodily-Kinesthetic Intelligence
M: Musical Intelligence E: Interpersonal Intelligence
L: Logical-Mathematical Intelligence I: Intrapersonal Intelligence
S: Spatial-Visual Intelligence N: Naturalist Intelligence

Cross Correlations: Intrinsic (HS Classes) and Extrinsic (Majors) Multiple Intelligences

Figure 3.19

Multiple Intelligences: Frequency of Favorite HS Classes and Majors

		Majors		
	Philosophers	Musicians	Naturalists	Designers
Philosophers	28	10	14	22
Musicians	24	7	15	17
Naturalists	35	16	16	26
Designers	28	12	25	24

(Rows labelled under "HS Classes")

Contingency Table: Count of students that meet classification criteria

3.2.2.4 Coding (clusters). Several open-ended responses were asked on the survey that can help identify themes related to choosing LA as a major at the student's university. The open-ended question is a challenge to analyze, but it is a beneficial question-type as it does not impose or presuppose a set of answers, making it possible to carry out interpretive analysis. This is a grounded-theory approach where no assumptions are made. Based on the data, responses are categorized into themed elements and two independent coders (qualified by ability to analyze responses and categorize content) are trained to review a response and identify the categorized elements. Many times, this is performed with a simple dichotomy category, but due to the nature of this research, the goal being to identify all possible relationships, multiple categorizations occurred. An online tool was built to allow the independent coders to see the open-ended responses and then determine if a response was relevant to the categories created. Training occurred with sample subjects randomly selected across the open-ended responses. Across all open-ended responses, an average weighted agreement of 96% was reported between the independent coders with an overall Cohen's kappa statistic of 0.79 which suggests substantial agreement. **Appendix B** reports the details of the agreement across questions and categories: nine questions were coded using this

Figure 3.20

Clusters: AWARE

Please describe HOW you became aware of Landscape Architecture.

Cluster 1: Landscaper Influence
(n=55, 17% of the sample)

Cluster 2: Friend Influence
(n=46, 14% of the sample)

Cluster 3: Everyone Else
(n=230, 70% of the sample)
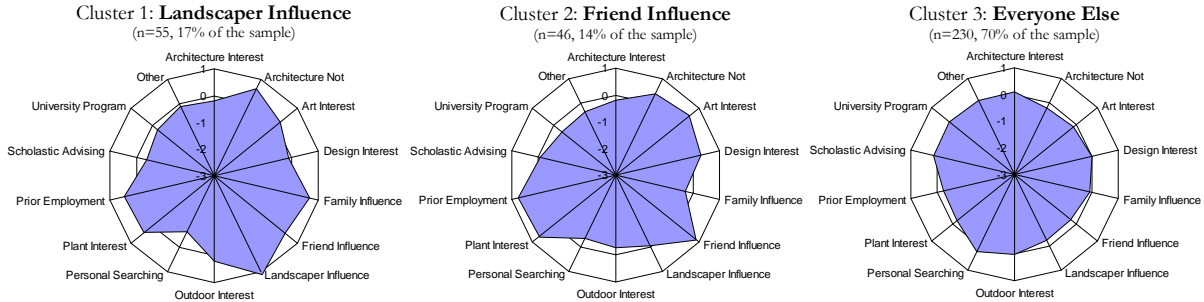
Model-based Clustering: ellipsoidal, equal-volume and equal-shape model with 3 interpretable clusters

technique meaning over 3000 open-ended responses needed to be considered; 152 categories were identified across the nine questions and over 4000 categorizations occurred. This provides a rich amount of data that may be used to discover additional themes that could further understandings of LA students. Final coding decisions were made by the principal investigator with the input from the independent coders on why they chose the given response. Of key interest are five specific open-ended questions.

The first question (AWARE) is "please describe HOW you became aware of Landscape Architecture." The best fit is an ellipsoidal, equal-volume and equal-shape model with three interpretable clusters as seen in **Figure 3.20**: Cluster 1 (n=55, 17% of the sample) represents those with high scores on Landscaper Influence and moderate scores on Family Influence; Cluster 2 (n=46, 14% of the sample) represents those high scores on Friend Influence, Prior Employment, and Plant Interest; Cluster 3 (n=230, 70%) represents everyone else (not much to glean from this one).

Figure 3.21
Clusters: CHOICE
Why did you choose landscape architecture as your major?
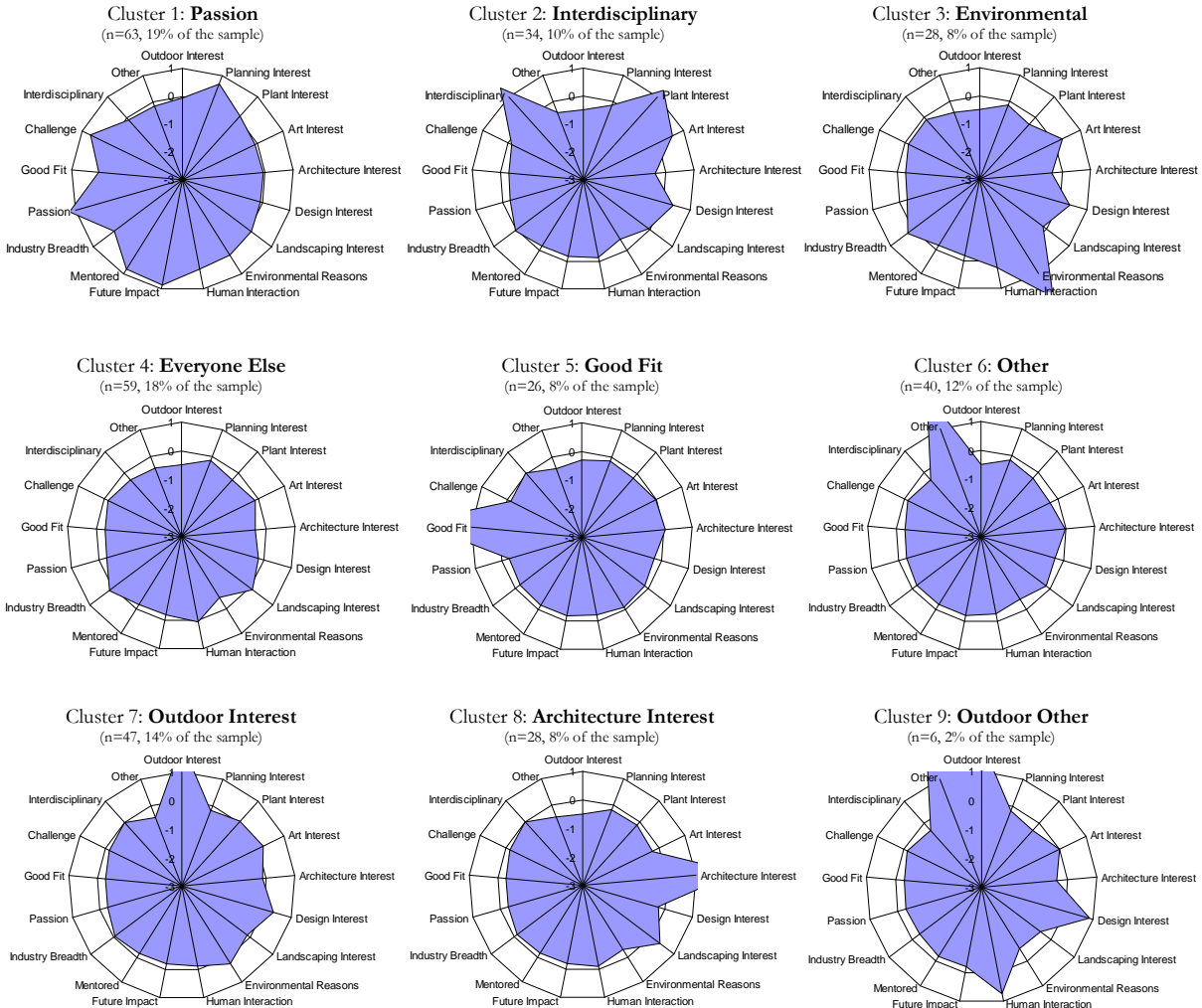
Model-based Clustering: ellipsoidal, equal-variance model with 9 interpretable clusters

The second question (CHOICE) is "Why did you choose Landscape Architecture as your major?" The best fit is an ellipsoidal, equal-variance model with nine interpretable clusters as seen in **Figure 3.21**: Cluster 1 (n=63, 19% of the sample) represents those with high scores in Passion, and relatively high scores in Future Impact, Mentored, Planning Interest, and Challenge; Cluster 2 (n=34, 10% of the sample) represents those with high

scores in Interdisciplinary and Plant Interest with relatively high scores in Art interest and Design Interest; Cluster 3 (n=28, 8% of the sample) represents those with high scores in Environmental Reasons; Cluster 4 (n=59, 18% of the sample) represent everyone else (those who do not fit in any other distinguishable cluster); Cluster 5 (n=26, 8% of the sample) represents those with high scores in Good Fit; Cluster 6 (n=40, 12% of the sample) represents those with high scores in Other (explained, but did not fit into one of the 16 categories); Cluster 7 (n=47, 14% of the sample) represents those with high scores in Outdoor Interest; Cluster 8 (n=28, 8% of the sample) represents those with high scores in Architecture Interest; Cluster 9 (n=6, 2% of the sample) represents those with high scores in Outdoor Interest and Other with relatively high scores in Human Interaction and Design Interest.

The third question (MOTIVATION) is "What was most attractive to you about landscape architecture and what is most motivating to you now?" The best fit is a spherical, equal-volume model with nine interpretable clusters as seen in *Figure 3.22*: Cluster 1 (n=42, 13% of the sample) represents those with high scores on Environmental Reasons, Human Interaction and Future Impact; Cluster 2 (n=22, 7% of the sample) represents those with extremely high scores on Planning Interest and Plant Interest; Cluster 3 (n=21, 6%) represents those with extremely high scores in Art Interest and high scores in Interdisciplinary; Cluster 4 (n=147, 44% of the sample) represent the non-descript everyone else; Cluster 5 (n=8, 2% of the sample) represent those with extremely high scores in Industry Breadth and Environmental Reasons; Cluster 6 (n=4, 1% of the sample) represent those with extremely high scores in Water Interest; Cluster 7 (n=10, 3% of the sample)

Figure 3.22
Clusters: MOTIVATION
What was most attractive to you about landscape architecture and what is most motivating to you now?

Cluster 1: **Environmental Future** (n=42, 13% of the sample)

Cluster 2: **Planning/Plants** (n=22, 7% of the sample)

Cluster 3: **Art** (n=21, 6% of the sample)

Cluster 4: **Everyone Else** (n=147, 44% of the sample)

Cluster 5: **Environmental Industry** (n=8, 2% of the sample)

Cluster 6: **Water Interest** (n=4, 1% of the sample)

Cluster 7: **Interdisciplinary** (n=10, 3% of the sample)

Cluster 8: **Industry Breadth** (n=40, 12% of the sample)

Cluster 9: **Other** (n=37, 11% of the sample)
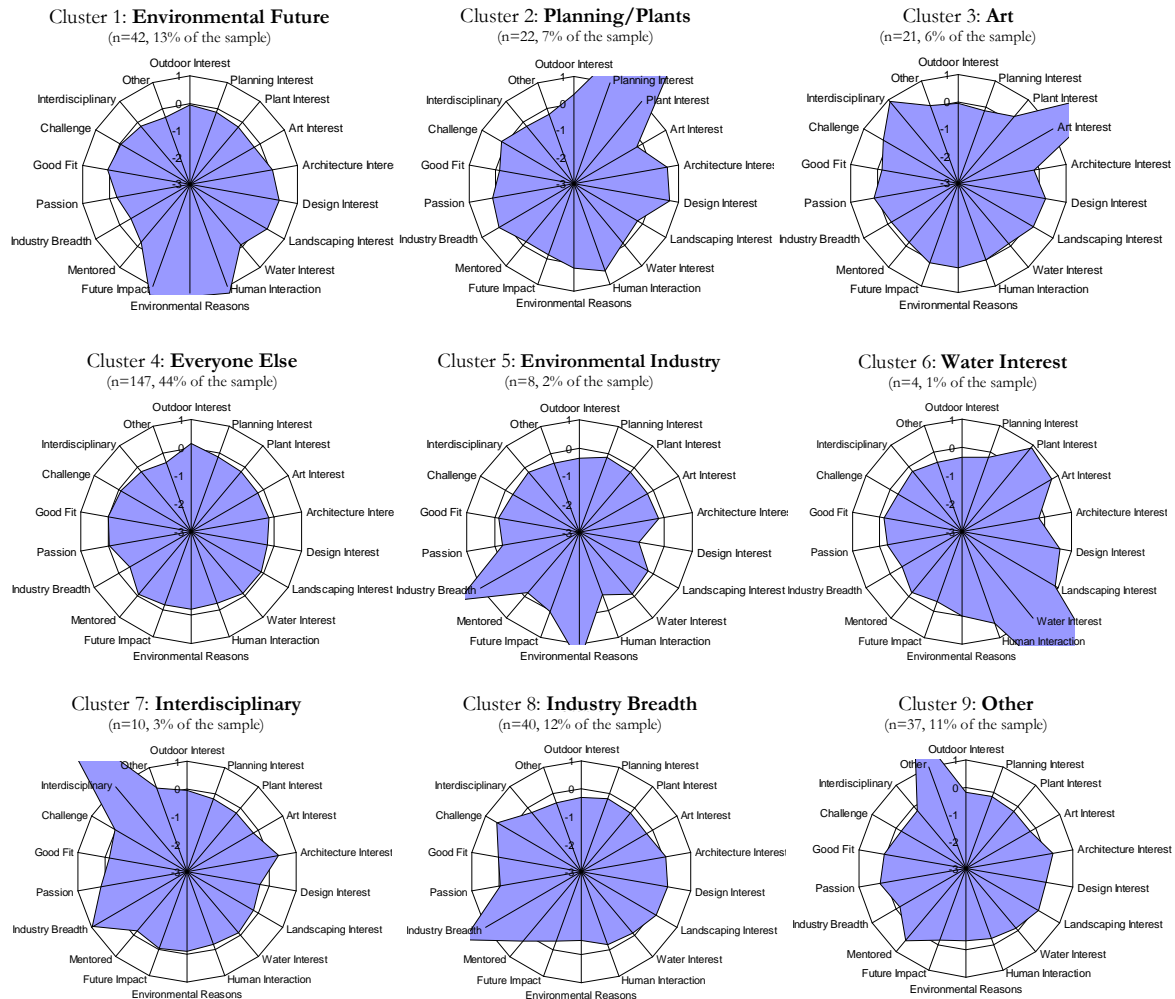
Model-based Clustering: spherical, equal-volume model with 9 interpretable clusters

represent those with extremely high Interdisciplinary with moderately high Industry Breath; Cluster 8 (n=40, 12% of the sample) represent those with extremely high Industry Breadth and relatively high Challenge; and Cluster 9 (n=37, 11% of the sample) have scores high in Other (explained, but did not fit into one of the 17 categories).

Figure 3.23

Clusters: PASSION

What do you consider your passion and does it relate to landscape architecture?

Cluster 1: Golf/Photography
(n=20, 6% of the sample)

Cluster 2: Environmental Help
(n=29, 9% of the sample)

Cluster 3: Everyone Else
(n=132, 40% of the sample)

Cluster 4: Music/Theatre
(n=17, 5% of the sample)

Cluster 5: Outdoors
(n=32, 10% of the sample)

Cluster 6: Design/Creativity
(n=46, 14% of the sample)

Cluster 7: Art
(n=35, 11% of the sample)

Cluster 8: Urban Planning
(n=8, 2% of the sample)

Cluster 9: Better World
(n=12, 4% of the sample)
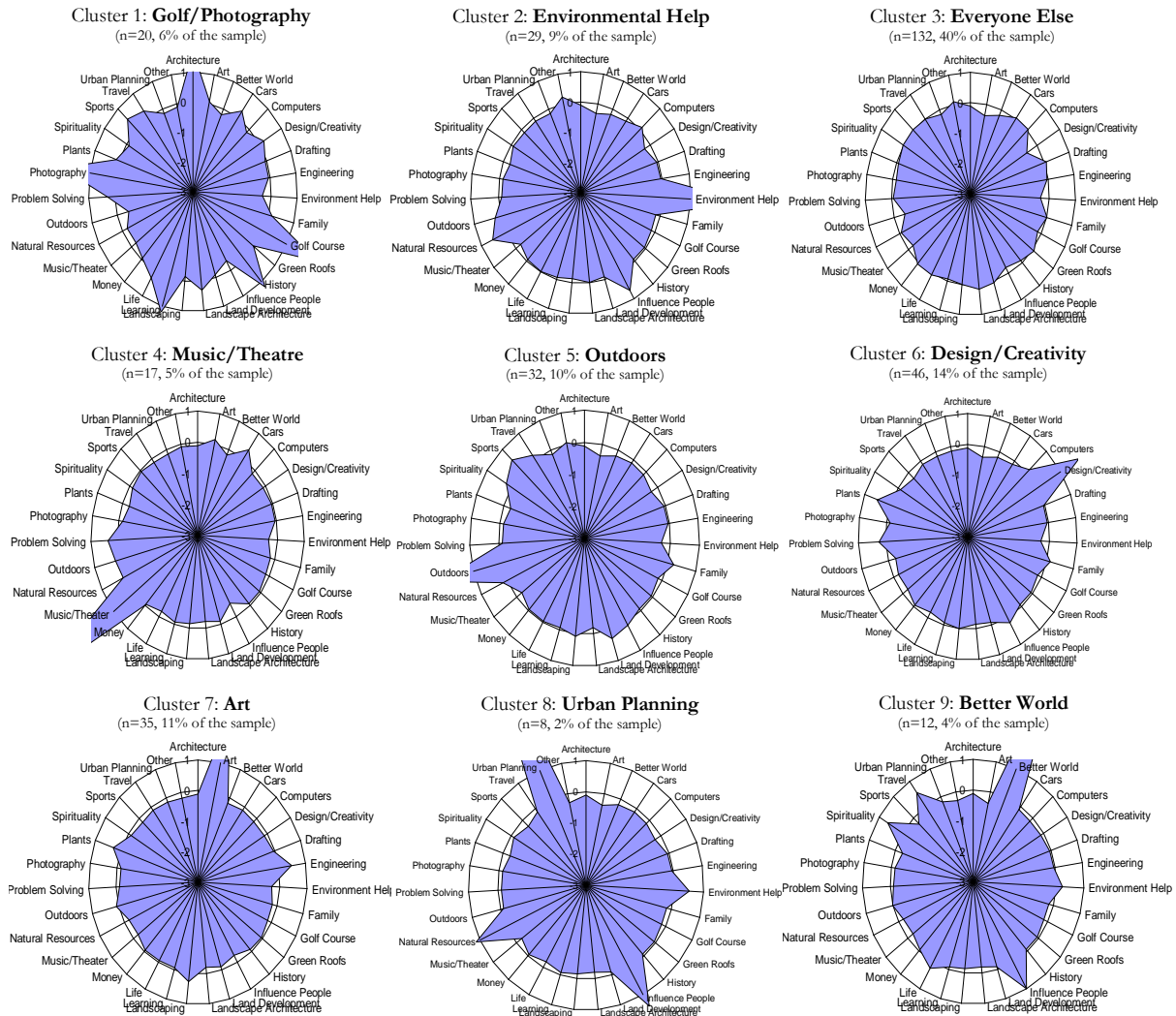
Model-based Clustering: spherical, equal-volume model with 9 interpretable clusters

The fourth question (PASSION) is "What do you consider your passion and does it relate to landscape architecture?" The best fit is a spherical, equal-volume model with nine interpretable clusters as seen in ***Figure 3.23***: Cluster 1 (n=20, 6% of the sample) represents those with extremely high scores in Golf Course and Photography, moderately high scores in Architecture, and relatively high scores in History and Learning; Cluster 2 (n=29, 9% of the

sample) represent those with extremely high scores in Environment Help; Cluster 3 (n=132, 40% of the sample) represent the non-descript everyone else; Cluster 4 (n=17, 5% of the sample) represent those with extremely high scores in Music/Theatre; Cluster 5 (n=32, 10% of the sample) represent those with extremely high scores in Outdoors; Cluster 6 (n=46, 14% of the sample) represent those with extremely high scores in Design/Creativity; Cluster 7 (n=35, 11% of the sample) represent those with extremely high scores in Art; Cluster 8 (n=8, 2% of the sample) represent those with extremely high scores in Urban Planning and relatively high scores in Influence People and Natural Resources; and Cluster 9 (n=12, 4% of the sample) represent those with extremely high scores in Better World and relatively high scores in Influence People and Spirituality.

The fifth question (GOALS) is "What are your long-term career goals and how will the study of landscape architecture help you accomplish these goals?" The best fit is a spherical, equal-volume model with four interpretable clusters as seen in **Figure 3.24**: Cluster 1 (n=42, 13% of the sample) represents those with extremely high scores in Help Environment and moderately high scores in Help Society; Cluster 2 (n=64, 19% of the sample) represents those with extremely high scores in Own Company; Cluster 3 (n=175, 53% of the sample) represents the non-descript everyone else; and Cluster 4 (n=50, 15% of the sample) represents those with high scores in Other (explained, but did not fit into one of the 10 categories).

3.2.2.5 Hometown versus University Town (clusters). Although location was considered in the survey, the ZIP codes were collected which allows secondary data analysis to try and understand the geographical fit of the university choice. The secondary data was harvested

Figure 3.24
Clusters: GOALS

What are your long-term career goals and how will the study of landscape architecture help you
accomplish these goals?

Cluster 1: **Help World**
(n=42, 13% of the sample)

Cluster 2: **Own Company**
(n=64, 19% of the sample)

Cluster 3: **Everyone Else**
(n=175, 53% of the sample)

Cluster 4: **Other**
(n=50, 15% of the sample)
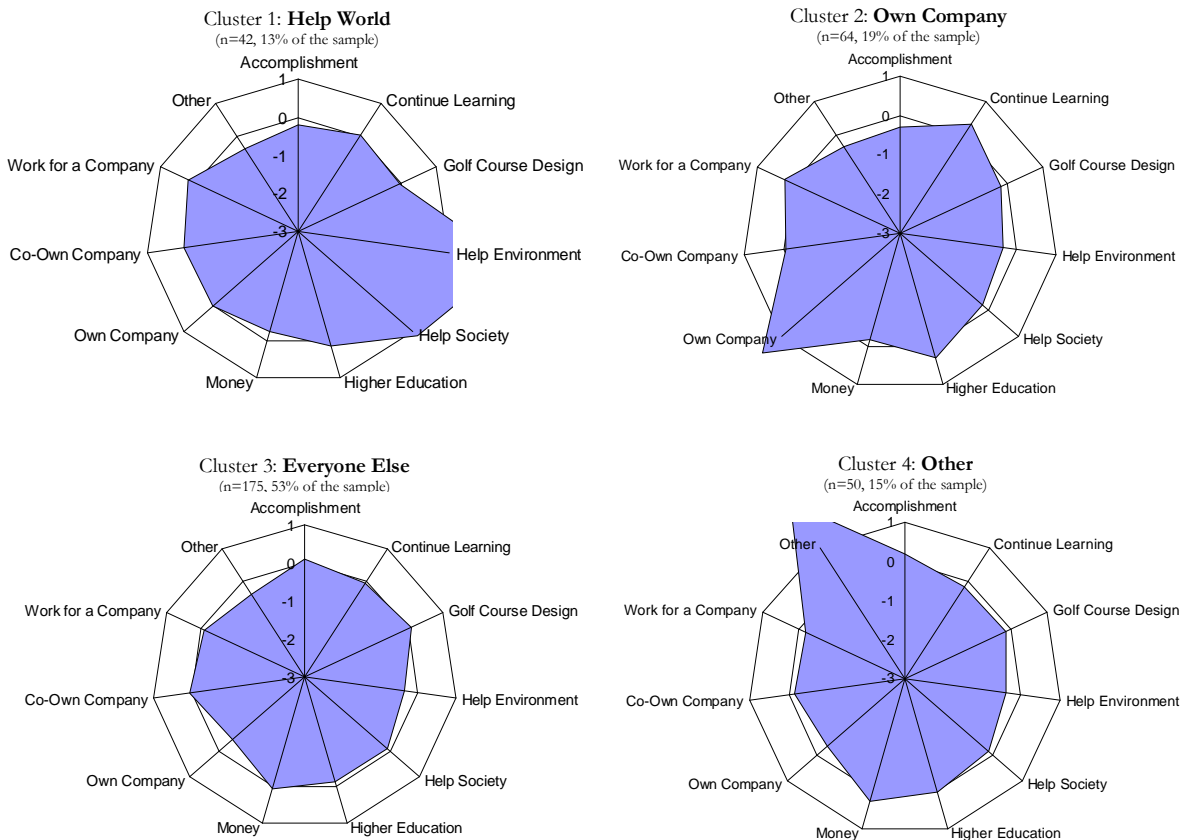
Model-based Clustering: spherical, equal-volume model with 4 interpretable clusters

off the internet at http://factfinder.census.gov/, which contains the 2003 U.S. Census data.

Although the measures may be crude, the underlying themes of geographical fit may have

some interesting value. The individual's home ZIP code was compared to the university's

ZIP code along several variables. Originally, 18 variables were considered; however, basic

stability identified nine variables of interest: Population, Age, percentage Caucasian,

percentage College Degree, percentage Working, Work Traveling Distance, Per Capita

Family Income, percentage below Poverty Level, and median Value of a Home. Each ZIP

code was standardized, and with standardized scores being compared between universities and home; specifically, home was subtracted from university (U-H). These variables were then clustered using a model-based technique. The comparison is based on the expression "university is … compared to the home." The best fit is an ellipsoidal, equal-variance model with seven interpretable clusters as seen in **Figure 3.25**. Cluster 1 (n=84, 27% of the sample) represents a college-town: the university is younger, has more people without a college degree, the population is larger, and home values are higher than in the student's home town. The majority of students sampled attending the following universities represent this cluster: Iowa State, Oklahoma State, Texas Tech, Maryland, Massachusetts, Virginia Tech, Washington, and Washington State. Cluster 2 (n=15, 5% of the sample) represents the inner-city university: the university location is older, a high percentage of the population lacks college degrees, the population is larger, home values are lower, and the percentage of Caucasians is lower. The majority of students sampled attending Philadelphia and Louisiana State represent this cluster. Cluster 3 (n=98, 32% of the sample) represent a different inner-city university: the university location is higher valued area. The majority of the students sampled attending the following universities represent this cluster: Arizona State, Cal-Poly San Luis Obispo, North Carolina State, North Dakota State, Arkansas, Kentucky, Nebraska, UNLV and Utah State. Cluster 4 (n=8, 3% of the sample) represents a university in an extremely high valued area compared to the student's home (this small sample is the remainder of Cal-Poly San Luis Obispo students). Cluster 5 (n=58, 19% of the sample) represents a university location that has the highest percentage of College degrees with the majority of students sampled represented from: Michigan State, Ohio State, and Penn State.

Figure 3.25
Clusters: Comparing University Town to Hometown (U-H)

Cluster 1: **More College Town** (n=84, 27% of the sample)

Cluster 2: **More Inner-City A** (n=15, 5% of the sample)

Cluster 3: **More Inner-City B** (n=98, 32% of the sample)

Cluster 4: **Higher-End** (n=8, 3% of the sample)

Cluster 5: **More Educated** (n=58, 19% of the sample)

Cluster 6: **Smaller** (n=35, 11% of the sample)

Cluster 7: **Younger** (n=13, 4% of the sample)
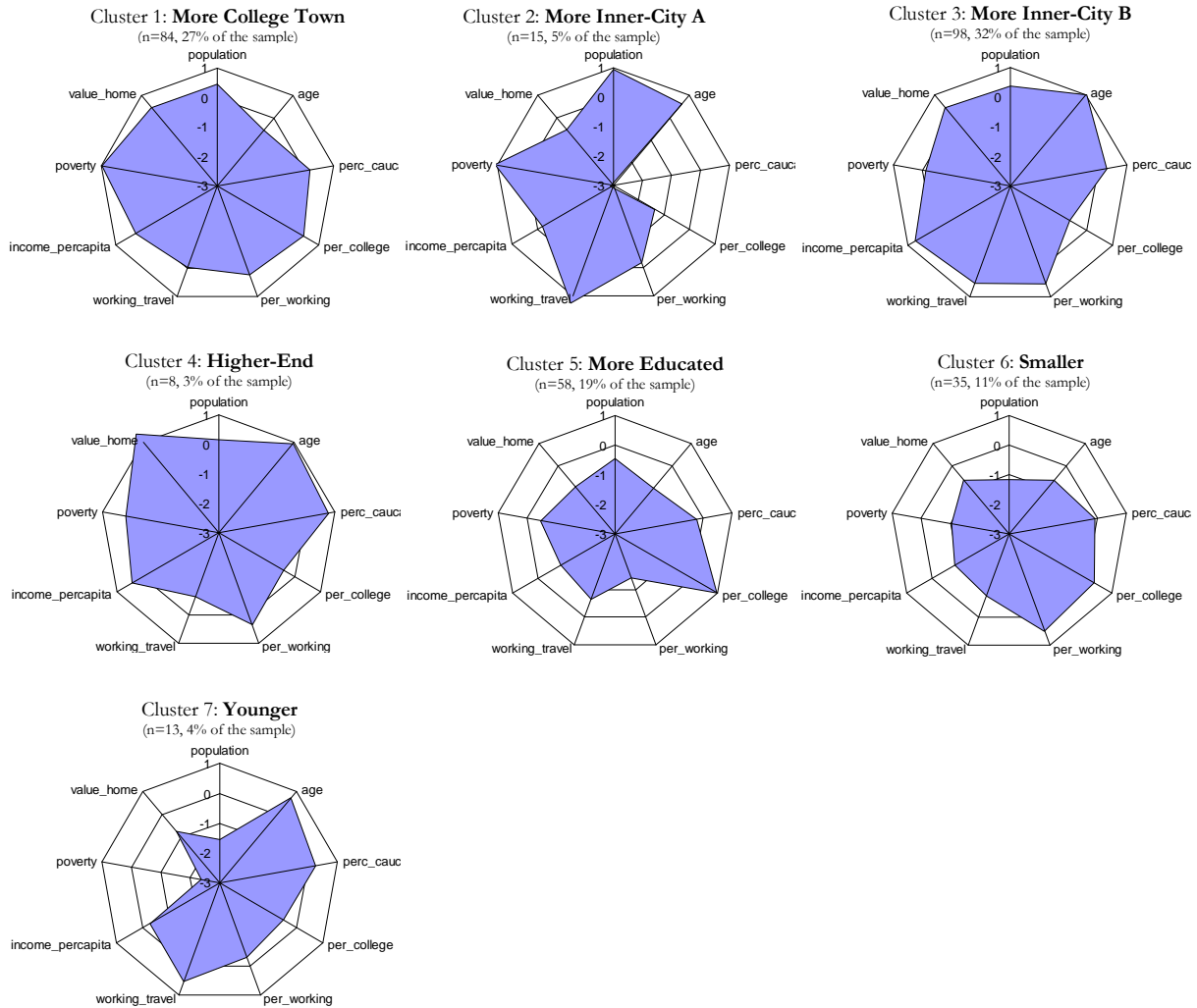
Model-based Clustering: ellipsoidal, equal-variance model with 7 interpretable clusters

Cluster 6 (n=35, 11% of the sample) represents a university location that is much smaller and much poorer than home towns: Connecticut, Mississippi State, and Georgia. Cluster 7 (n=13, 4% of the sample) represents a university location that is much younger with lower home values than home towns: some of the students from Penn State.

3.2.2.6 Summary of Defined Variables to find Qualitative Meaning

These various analyses have broadened our understanding of the survey instrument and have helped generate psychographic variables to fully appreciate the important issue of understanding why a student chooses to major in LA. In summary, analysis has gone beyond simple demographics and descriptive statistics. Further analyses has allowed for the creation of many new variables, most of which are psychographic. For example, the question "Name your three favorite High School Classes" has been transformed into a psychographic variable consistent with the theory of Multiple Intelligences: MI HS classes. The consequent clustering of these variables now define four normal groups within the sample, presenting the idea of learning preferences within the LA major: Designers, Naturalists, Philosophers, and surprisingly Musicians.

Likewise, nine other unique psychographic variables have been defined with a conceptualization of their groupings: MI major (extracted from other majors considered and treated similar to the aforementioned psychographic variable), University FACTORS (why university was selected), CAREER Anticipations, AWARE, GOALS, CHOICE, MOTIVATION, PASSION (all based on coding of open-ended responses), and LOCATION (comparison of home ZIP code to university ZIP code classified appropriately). This research has defined ten psychographic variables to understand the research at hand. Now that all of the psychographic variables of interest have been created, a simple application of these variables will be used to demonstrate their importance.

3.2.3 Group Comparisons

Now that the all of the psychographic variables of interest have been created and defined, a simple application of these variables will be used as another tactic to understand the data, which will allow for thematic conclusions relating to the theory and observations outlined. This is achieved by dividing the sample into simple groups and comparing traditional variables and the newly created psychographic variables by group. Group comparisons can be considered simple segmentations; however, their purpose is to emphasize the value of this qualitative research process and the insights and themes that can be extracted from this methodology. Although there are many possible group comparisons, four group comparisons relevant to the research question and the marketing problem will be considered: gender comparisons (demographic: male vs. female), awareness comparisons (psychographic: aware before college, not aware before college), selection comparisons (psychographic: university choice or LA choice), and specific university comparisons (demographic: Pennsylvania State University to Washington State University). Key differences[3] will be reported below with the full analysis available in the appropriate appendix. Also, ***Figures 3.26*** and ***3.27*** show differences by group of importance of encouragement in the decision to major in LA (comparing groups based on data presented earlier in ***Figure 3.5***). Mentors are of the most interest; their roles can be better understood by group by studying their positions relative to each other on each graph.

---

[3] Directional differences in a group comparison can have qualitative meaning and will be reported even if statistical significance may not exist based on the sample size.

Figure 3.26

Social Influence Importance/Performance Graphs (Group Comparisons – F/M & PSU/WSU)
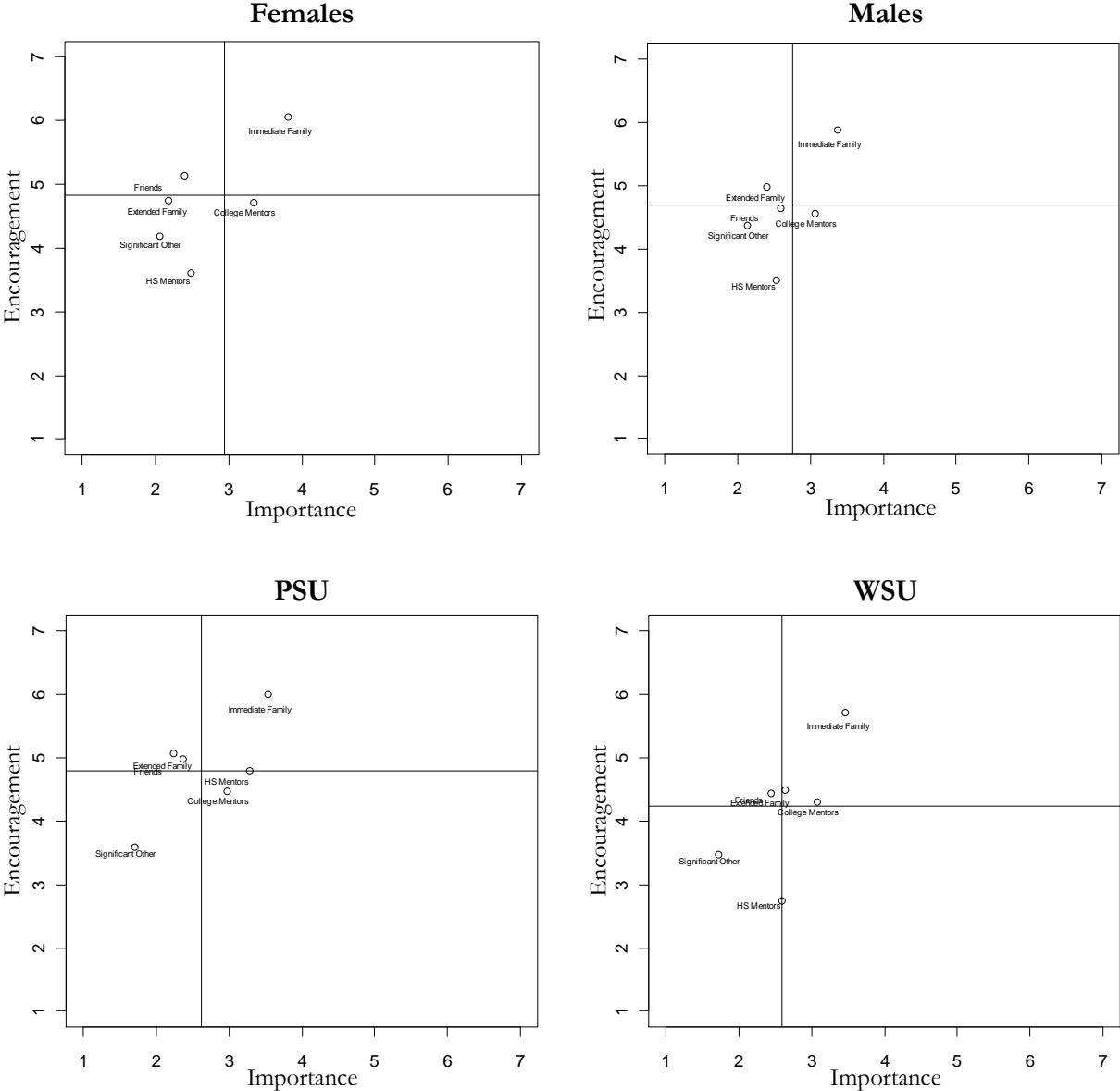
Figure 3.27

Social Influence Importance/Performance Graphs (Group Comparisons – Awareness & Selection)
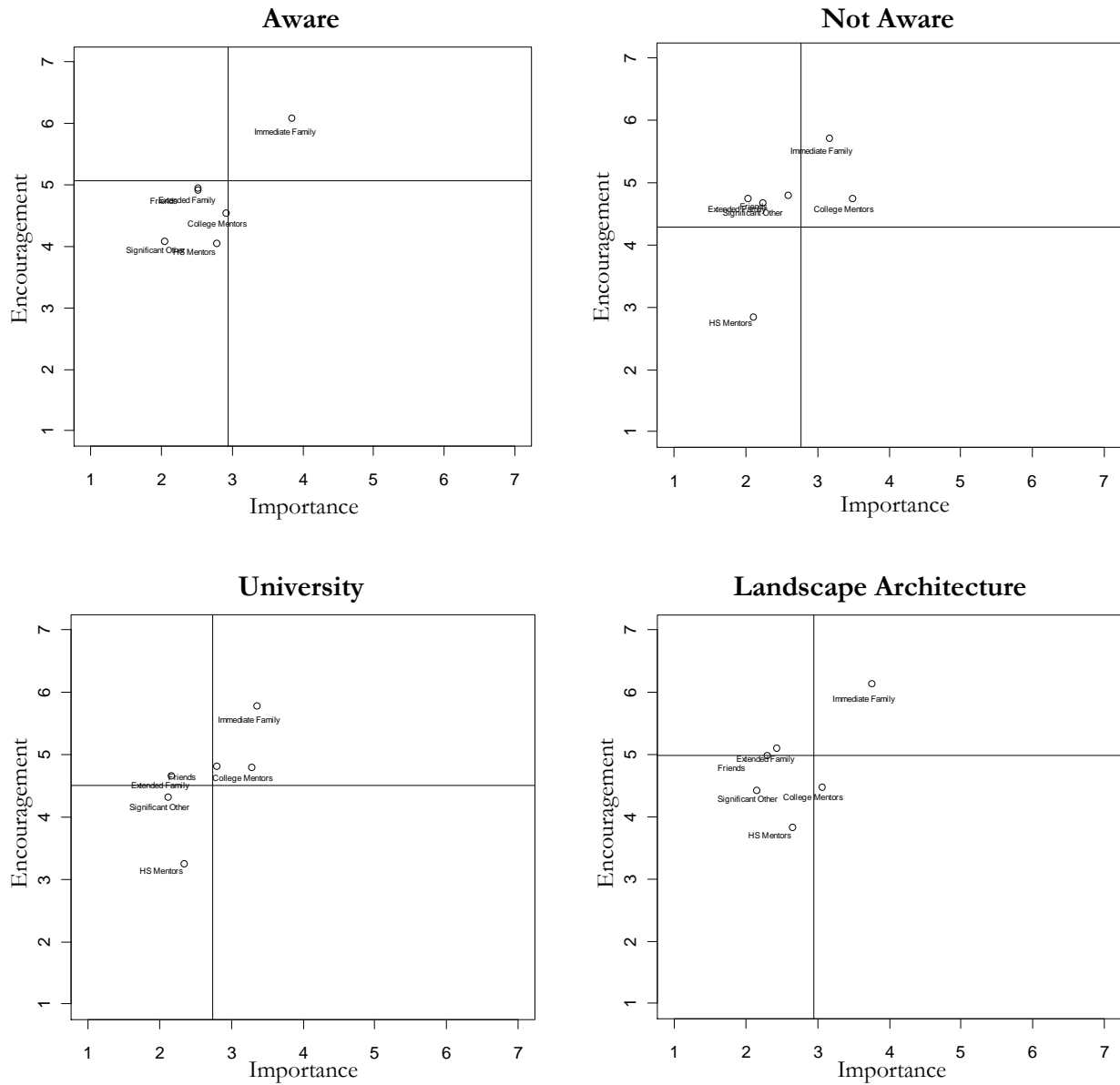
3.2.3.1 Gender Comparisons. It is apparent that there are key gender differences in the data as women (n=114) are compared to men (n=185) by the available variables (see ***Appendix C***). Differences reported below include 8% difference or greater. Reported first include those with 10% or greater difference and next are those with 8–9 % difference.

Men preferred history classes in high school more than women (14% male, 4% female). Women were more passionate (PASSION) about creativity (28% female, 18% male). In choosing which university to attend, women considered the setting of the university more than men (39% female, 26% male). Women were more prone to visit specific university programs (43% women, 25% men). As for career goals, men had a higher propensity to own a company (24% male, 12% female). Along those lines, men anticipated more to work as entrepreneurs (30% male, 16% female) and managers (22% male, 7% female). Overall, women more likely anticipated having a naturalist career (23% female, 10% male) while men more likely anticipated a manager career (21% male, 6% female).

When considering other majors, women reported art and graphic design more frequently than men (13% female, 5% male). Women were more passionate (PASSION) about art (16% female, 8% male). Men were more passionate about sports (11% male, 3% female). Men attended a university within their home state more frequently than women (83% male, 75% female). In discussing reasons why they chose LA as a major, women expressed more interest in the outdoors (25% female, 17% male) and in plants (17% female, 8% male). Women anticipated more work with park and recreation design (76% female, 68% male) while men anticipated more work in land development (42% male, 30% female).

3.2.3.2 Awareness Comparisons. Understanding the variables of this research based on when students became aware of LA is also inherently meaningful (see ***Appendix C***). The two groups of interest are defined as aware (n=183) or not aware (n=143) based on knowledge before college. Students aware knew the field of study existed before they arrived at college; students not aware did not know the field of study existed before they arrived at college. Differences reported below include 8% difference or greater. Reported first include those with 10% or greater difference and next are those with 8–9 % difference.

Those Aware of LA during or before high school were younger (A=22, NA=25) than those Not Aware until college. More Aware came from rural hometowns (39% A, 24% NA) while more Not Aware came from urban hometowns (19% NA, 9% A). In choosing which university to attend, Aware considered the setting of the university (38% A, 28% NA) along with the reputations of the LA department (56% A, 26 NA), the LA faculty (28%A, 18%NA), and the university (59% A, 45% NA) more than Not Aware. Those Aware traveled farther from their hometowns to attend college (103.4[41.9-201.9] A, 68.3[6.5-208.1] NA). Not Aware became more aware of LA due to specific university program influences (43% NA, 25% A). Aware became more aware due to family influences (19% A, 5% NA) and through a landscaping professional's influences (21% A, 10% NA). Those Aware declared their major as LA more as freshmen (71% A, 21% NA) while those Not Aware declared more as sophomores (60%NA, 17%A). Those Not Aware transferred more from architecture (17% NA, 6% A) than those Aware.

Not Aware considered location of the university (21% NA, 13% A) more than Aware. Not Aware became more aware of LA due to friend influence (21% NA, 13% A). As

for career goals, Aware had a higher propensity to own a company (28% A, 19% NA) and to have a residential design/build career (31% A, 23% NA). Those Not Aware had more desire to help their society (26% NA, 17% A) than those Aware.

3.2.3.3 Selection Comparisons. Understanding the variables of this research based on which students chose first, university or landscape architecture is also innately meaningful (see **Appendix D**). The two groups of interest are defined as University (n=162) or LA (n=151) based on order of decisions. Students who first chose their university, then chose to major in LA is the defined U; students who first chose to major in LA, then chose their university is the defined LA. Differences reported below include 8% difference or greater. Reported first include those with 10% or greater difference and next are those with 8–9 % difference.

Those who chose their university (U) then chose landscape architecture as their major were slightly younger (U=22, LA=23) than those who chose landscape architecture (LA) first. U had more males (84% U, 63% LA) than LA. More U had mothers with a 4-year college degree (55% U, 45% LA). More U fit with the Philosophers cluster (MI other considered majors) (43% U, 28% LA). More LA fit with the Naturalists cluster (30% LA, 16% U). U was more passionate about design and creativity (27% U, 17% LA). In choosing which university to attend, LA considered the reputations of the LA department (55% LA, 33% U) and the LA faculty (29% LA, 19% U) more than U. U considered the influence of family and friends (49% U, 32% LA or 12% U, 4% LA) along with financial factors (47% U, 37% LA) more than LA. LA traveled farther from their hometowns to attend college (U=65.4[9.2-165.1] miles, LA=116[48.5-240.2]). More U intended on getting a masters

degree (36% U, 26% LA). LA tend to become aware of landscape architecture more frequently during (58% LA, 33% U) high school while U became more aware during college (59% U, 28% LA). More U became aware of landscape architecture due to specific university program's influences (44% U, 23% LA). LA declared landscape architecture more as freshmen (62% LA, 38% U) and more U declared major as sophomores (46% U, 25% LA). More U transferred into landscape architecture from another major (44% U, 18% LA) and more transferred from architecture (17% U, 5% LA). On reasons for choosing to study landscape architecture, LA referenced design interest (47% LA, 36% U) more than U. As for career goals, LA had a higher propensity to own a company (30% LA, 19% U) than U.

LA is more passionate about helping the environment (13% LA, 4% U) more than U. More U remained in the home state to attend college (84% U, 76% LA). More LA were attracted to landscape architecture due to environmental reasons (31% LA, 22% U).

3.2.3.4 Specific University Comparisons. Understanding the variables of this research based on which university students attend can also be meaningful (see ***Appendix D***). The two groups of interest are defined as Pennsylvania State University (PSU) (n=47) and Washington State University (WSU) (n=46). Differences reported below include 8% difference or greater. Reported first include those with 10% or greater difference and next are those with 8–9 % difference.

PSU students were on average younger (PSU=20, WSU=22) than those at WSU. More mothers of PSU students have a 4-year college degree (52% PSU, 41% WSU). When considering other majors, PSU reported architecture more frequently than WSU (31% PSU, 11% WSU). WSU students had minors more frequently than PSU (28% WSU, 11% PSU).

More WSU students fit within the Designers cluster (favorite high school classes) (33% WSU, 23% PSU) while more PSU students fit within the Philosophers cluster (23% PSU, 7% WSU). As far as clusters of other considered majors, WSU fit within Philosophers cluster (46% WSU, 32% PSU) and Musicians cluster (26% WSU, 11% PSU) while PSU fit within the Designers cluster (32% PSU, 13% WSU) more than WSU. WSU students were more passionate about the outdoors (17% WSU, 6% PSU). In choosing which university to attend, PSU considered the reputations of the university (81% PSU, 41% WSU), LA department (72% PSU, 26% WSU or 38% PSU, 9% WSU), and LA faculty (38% PSU, 15% WSU) as well as location (72% PSU, 61% WSU), and the influence of family and friends (53% PSU, 39% WSU) more than WSU. WSU had more financial (41% WSU, 21% PSU) considerations in choosing their university than PSU. WSU students attended a university within their home state more frequently than PSU students (91% WSU, 79% PSU); however, WSU students traveled further to attend college from their hometowns (105[56.8-135.2] PSU, 240.2[62.4-264.5] WSU). More PSU students intended on getting a masters degree (45% PSU, 22% WSU or 23% PSU, 13% WSU). PSU students attended a smaller town for college (15% PSU, 0% WSU) while WSU students attended a more educated (87% WSU, 0% PSU) and younger (13% WSU, 0% PSU) town for college. WSU students tend to become aware of LA more frequently during college (41% WSU, 15% PSU) while PSU students tend to become aware of LA more frequently during high school (81% PSU, 48% WSU). PSU students became more aware of LA more frequently through architecture interest (32% PSU, 20% WSU). PSU students declared their major as LA more as freshmen (77% PSU, 50% WSU) while more WSU students declared it as sophomores (39% WSU, 9%

PSU). WSU students were more attracted to and motivated by LA by the breadth of the industry (22% WSU, 9% PSU or 37% WSU, 17% PSU) and design interest (61% WSU, 28% PSU). In discussing reasons why they chose LA as a major, PSU expressed more reasons associated with passion (30% PSU, 20% WSU), art interest (21% PSU, 9% WSU), and because of industry breadth (17% PSU, 7% WSU). WSU students chose LA more due to design interest (46% WSU, 26% PSU). As for career goals, WSU students had a higher propensity to own a company (37% WSU, 9% PSU or 39% WSU, 11% PSU). PSU students have more goals surrounding helping the world (21% PSU, 2% WSU) by helping the environment (21% PSU, 2% WSU) and society (21% PSU, 11% WSU). Along those lines, WSU students anticipated more to work as entrepreneurs (26% WSU, 15% PSU), in commercial design (57% WSU, 32% PSU), and residential design (78% WSU, 51% PSU). PSU students anticipated more work with land use planning and policy (43% PSU, 26% WSU).

In choosing which university to attend, PSU considered university setting (38% PSU, 30% WSU) more than WSU. WSU students became aware of LA more frequently through design interest (17% WSU, 9% PSU). PSU students became aware more frequently, through dislike or were not accepted to architecture (15% PSU, 7% WSU), and through having passion that aligns directly with LA (38% PSU, 30% WSU). PSU students anticipated a career involving urban design (70% PSU, 61% WSU) more than WSU students.

CHAPTER FOUR

DISCUSSION

4.1 Findings and Implications for LA Stakeholders

The findings of this qualitative research are presented in seven dialogues as they relate to my original research question: "Why does someone choose to pursue a degree in landscape architecture?" Many broad findings have been presented throughout this paper (see **Chapters 1–3** and **Appendices C–F**); however, at the heart of it all rests seven thematic elements. They are that LA students:

(1) have abilities that align with design, nature, social interaction, or (surprisingly) music.

(2) are passionate about the following topics: the environment, influencing people, architecture, design, art, music, and/or making the world a better place.

(3) are socially connected.

(4) are free spirits.

(5) are open-minded about career direction.

(6) are NOT in it for the money.

(7) tend to study at an institution near where they are already located.

(1) LA students have abilities that align with design, nature, social interaction, or (surprisingly) music. Not surprising to a LA stakeholder might be the abilities that align with design and nature, but maybe more surprising are the abilities related to social interaction (good with verbal skills along with people skills) and music. One way a recruiter may benefit from this by considering recruiting in a high school music or psychology class instead of typical class considerations like art or biology.

(2) LA students are passionate about the following topics: the environment, influencing people, architecture, design, art, music, and/or making the world a better place. A recruiter would be benefited to understand the diversity among potential students.

(3) LA students are socially connected. A recruiter may benefit from this by understanding how students arrive within the discipline and where they end up studying LA. Students become aware of LA and choose their university through the influence of family, friends, professionals, and mentors. This knowledge opens a venue to increase awareness for the future.

(4) LA students are free spirits. A recruiter needs to understand the nature of his/her students. LA students are more internally motivated and therefore desire autonomous support. To understand autonomous support, I recommend Deci's (1995) book entitled *Why We Do What We Do* to all LA stakeholders genuinely interested in the success of current and future LA students.

(5) LA students are open-minded about career direction. Perhaps due to the vastness of the industry as a whole, LA students do not anticipate any single direction within the discipline. By being autonomous, LA students desire to feel that they are in charge of their own futures. The benefit for recruiters may be to share the breadth of LA during the process of increasing awareness.

(6) LA students are NOT in it for the money. The truth is for the hours and training required for landscape architects, the pay is rarely in balance. A recruiter should not convey the industry to potential students as something that will make them wealthy for at least two reasons. The first is LA students are motivated internally (and not by money). Their passions

do not align with wealth, fame or any external motivating factor. The second deals with the honesty of the industry. Those who are attracted into studying LA should have a real sense of what to anticipate in their future.

(7) LA students tend to study at an institution near where they are already located. Except for maybe students at LA programs that are highly ranked, a vast majority of LA students attend a university relatively close to their hometown (in the same state). LA department recruiters should therefore direct their efforts toward students within their own state while ASLA recruitment efforts can focus on increasing the number of states with LA programs.

4.2 Limitations & Future Research

Although this research offers some key insights into the demographics and psychographics of why a student chooses a major in LA, it is not without its limitations. Temporal issues and the sample itself represent two major limitations of this issue. The integrated model developed is a growth model, meaning anticipations are constantly changing. A survey is a snapshot of the current anticipations and is limiting in fully appreciating the dynamics of the constant struggle between internal and external forces. Secondly, the sample itself is limiting: only undergraduate students in LA at specific U.S. universities were studied. An additional limitation is that the survey did not directly ask questions directly related to the theoretical framework as it was developed prior to the integrated model; as such, certain assumptions were made. For example, linking MI to favorite high school classes assumes certain ability is present for students who like a particular class and does not account for other variables that could influence the reasons for

liking those classes. Also, age calculations based on high school graduation year could be limiting.

As stated earlier, this research is a progressive step forward from the previous contributions (Powers, 2000), which suggests that future research can use the insights presented to make further contributions. Three key areas of future research are foreseen: (1) study students across the world in all types of LA university programs; (2) study LA students over time: from awareness well into their careers; (3) and develop and test marketing (recruiting) and evaluative programs.

4.3 Conclusion

This study is informative research; it discovers variables important to the LA student's decision to pursue a career in LA. These variables can now be used to segment the market according to individual recruitment desires. It is clear from both the AIDA-SC model (see **Figure 1.1**) and the data presented that increasing the awareness of (the product) LA as a field of study available at college should be ever-present in all recruiting campaigns within LA or else market demands cannot be met. Adapted from previously mentioned, such a strategy has two underlying premises: (1) current students matter and their perspective are essential to developing and implementing recruiting strategies; and (2) promotions to potential students need to be based on their needs. In short, this study has created the groundwork on which to build a robust LA industry.

REFERENCES

Adragna, D. (2009). Influences on Career Choice During Adolescence. *Psi Chi Journal of Undergraduate Research*, 14(1), 4-7.

Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, New Jersey: Prentice-Hall.

Akbulut, A., Looney, C., & Motwani, J. (2008). Combating the Decline in Information Systems Majors: The Role of Instrumental Assistance. *Journal of Computer Information Systems*, 48(3), 84-93.

Beggs, J., Bantham, J., & Taylor, S. (2008). Choosing a college major represents a major life decision. *College Student Journal*, 42(2), 381-394.

Bureau of Labor Statistics (2010). *Occupational Outlook Handbook (Landscape Architects)*.

Caughey, P. (2006). *It's a Very Good Time to Become a Landscape Architect*.

Deci, E. (1995). *Why We Do What We Do: Understanding Self-Motivation*. New York: G.P. Putnam's Sons; Penguin Books.

Deci, E. & Ryan, R. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum Press.

Fitzgerald, N. (2003). Choosing the Right College for You. *Careers & Colleges*, 10-16.

Fraley, C. & Raftery, A. (2007). Bayesian Regularization for Normal Mixture Estimation and Model-Based Clustering. *Journal of classification*, 24(2), 155-181.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.

Gardner, H. (1997). *The First Seven...and the Eighth: A Conversation with Howard Gardner*.: Checkley, K..

Groat, L. & Wang, D. (2002). *Architectual Research Methods*. New York: John Wiley & Sons, Inc..

Heinze, N. & Hu, Q. (2009). Why college undergraduates choose IT: a multi-theoretical perspective. *European Journal of Information Systems*, 18, 462-475.

Hemsley-Brown, J. (1999). College Choice. *Educational Management & Administration*, 27(1), 85-98.

Kelly, G. (1955). *A Theory of Personality: The Psychology of Personal Constructs*. New York: W.W. Norton & Company.

Kerin, R. & Peterson, R. (2007). *Strategic Marketing Problems*. Upper Saddle River, New Jersey: Pearson Education.

Krutii, I. & Fursov, K. (2007). Goals and Motives for Enrolling in an Institution of Higher Learning. *Russian Education and Society*, 49(3), 35-46.

Kuechler, W., McLeod, A., & Simkin, M. (2009). Why Don't More Students Major in IS?. *Decision Sciences Journal of Innovative Education*, 7(2), 463-488.

Lattin, J., Carroll, J., & Green, P. (2003). *Analyzing Multivariate Data*. United States: Brooks/Cole, Cengage Learning.

Lee, A. (1991). Integrating Positivist and Interpretive Approaches to Organizational Research. *Organization Science*, 2(4), 342-365.

Lent, R., Brown, S., & Hackett, G. (1994). Toward a Unifying Social Cognitive Theory of Career and Academic Interest, Choice, and Performance. *Journal of Vocational Behavior*, 45(1), 79-122.

McInerney, C., DiDonato, N., Giagnacova, R., & O'Donnell, A. (2006). Students' Choice of Information Technology Majors and Careers: A Qualitative Study. *Information Technology, Learning, and Performance Journal*, 24(2), 35-53.

Pollock, K., Papiernik, J., & Slaubaugh, M. (2002). High School Guidance Counselors' Perceptions of the Profession. *The CPA Journal*, 72(5), 73-74.

Powers, M. (2000). *Factors in Choosing Landscape Architecture as a Major: A National Student Survey*. Blacksburg: Virginia Polytechnic Institute & State University.

Ryan, R. & Deci, E. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist*, 55(1), 68-78.

Shimodaira, H. (2004). Approximately Unbiased Tests of Regions Using Multistep-Multiscale Bootstrap Resampling. *Annals of Statistics*, 32(6), 2616-2641.

Strauss, A. & Corbin, J. (1998). *Basics of qualitative research: techniques and procedures for developing grounded theory*. Thousand Oaks, California: Sage Publications.

Tan, L. & Laswad, F. (2009). Understanding Students' Choice of Academic Majors: A Longitudinal Analysis. *Accounting Education: an international journal*, 18(3), 233-253.

Vos, J. & Evers, J. (2004). *MSc in Bioinformatics: Statistical Data Mining.* Oxford, United Kingdom: Oxford University.

Wang, D. (2007). Diagramming Design Research. *Journal of Interior Design*, 33(1), 33-43.

White, R. (1959). Motivation Reconsidered: The Concept of Competence. *Psychological Review*, 66(5), 297-332.

Xu, R. & Wunsch, D. (2005). Pattern Classification and Clustering: Survey of Clustering Algorithms. *IEEE transactions on neural networks*, 16(3), 645-678.

Zhang, W. (2007). Why IS: Understanding Undergraduate Students' Intentions to Choose an Information Systems Major. *Journal of Information Systems Education*, 18(4), 447-458.

Landscape Architecture Education Survey

Survey Instructions

- Please read each question entirely
- Please answer each question completely
- Take as much time as necessary
- Have Fun & Thank You

IRB statement

- This survey is for the purposes of a student masters' thesis research
- Respondents' identities will not in any way be disclosed
- The respondents are doing this willingly and have the option of not answering any or all of the questions

Please take survey NOW!

Landscape Architecture Education Survey

About You

1. Are you Female or Male?

◯ Female   ◯ Male

2. Where is your hometown? (enter ZIP for US/Canada; enter COUNTRY if not US)

Zip Code: [_____]

Country: [_____]

3. How would you describe your hometown?

◯ Rural

◯ Suburban

◯ Urban

◯ Other (please specify)

[_____]

4. What year did you graduate from High School?

(please enter year) [_____]

5. Please list in ORDER your three favorite classes in High School.

1. [_____]
2. [_____]
3. [_____]

More About You

6. What is the name of your current university?

[_____]

[_____]

7. What year are you in your landscape architecture program?

○ Freshman

○ Sophomore

○ Junior

○ Senior

○ 5th Year

○ Other (please specify)

[   ]

8. What is your minor?

○ I don't have a minor

○ I have a minor (please specify)

[   ]

9. How much education do you plan on completing?

[   ]

10. How much education has your father completed?

[   ]

11. How much education has your mother completed?

[   ]

12. What is your parent's income? (combined)

[   ]

13. What is the profession of your:

Mother? [   ]

Father? [   ]

College Degree in Landscape Architecture

14. WHEN did you become aware that Landscape Architecture was a field you could study at college?

○ before Elementary School

○ Elementary School

○ Middle School/Junior High

○ High School

○ Junior College

○ College

○ Other (please specify)

[_____]

15. Below, please describe HOW you became aware of Landscape Architecture.

[_____]

Choosing Landscape Architecture as a Major at College

16. During what year in school did you declare landscape architecture as your major?

○ Freshman

○ Sophomore

○ Junior

○ Senior

○ Other (please specify)

[_____]

17. Why did you choose Landscape Architecture as your major?

[_____]

99

18. What other majors did you consider? If you didn't consider any other major put N/A.
(please select up to three, listing most considered first)

1. [   ]
2. [   ]
3. [   ]

19. Did you transfer into landscape architecture from another major? If so, please explain.

◯ No

◯ Yes (please explain below)

[   ]

20. Which best describes your choice of university and landscape architecture major:

◯ 1. I chose what university I wanted to attend, then chose landscape architecture as a major.

◯ 2. I chose to major in landscape architecture, then found a university that offered it.

◯ 3. Other (please explain)

[   ]

21. Which factor(s) led you to choose your current university to study landscape architecture?
(check all that apply)

☐ Current university recruited me

☐ Reputation of current university

☐ Location of current university

☐ Setting of current university (rural/urban)

☐ Reputation of current landscape architecture faculty

☐ Reputation of current landscape architecture department

☐ Financial considerations

☐ Influence of family/friends

☐ Other(s) (please specify as many as necessary)

Goals of Landscape Architecture Major

22. What was most attractive to you about landscape architecture and what is most motivating to you now?

23. What do you consider your passion and does it relate to landscape architecture?

Landscape Architecture Education Survey

24. What are your long-term career goals and how will the study of landscape architecture help you accomplish these goals?

[text box]

25. What type(s) of work do you anticipate doing in your career? (check all that apply)

☐ Natural resource planning/management   ☐ Land use planning/policy

☐ Ecological restoration/preservation   ☐ Industrial/Commercial design

☐ Design/Build   ☐ Academic

☐ Land development   ☐ Managerial

☐ Residential design   ☐ Urban design

☐ Entrepreneurial   ☐ Park/Recreation design

☐ Other(s) (please specify as many as necessary)

[text box]

26. Is this the last degree you are seeking? If not, please explain.

○ Yes

○ No (please explain below)

[text box]

Social Factors that influenced your decision to Major in Landscape Architec...

24. What are your long-term career goals and how will the study of landscape architecture help you accomplish these goals?

25. What type(s) of work do you anticipate doing in your career? (check all that apply)

☐ Natural resource planning/management   ☐ Land use planning/policy

☐ Ecological restoration/preservation   ☐ Industrial/Commercial design

☐ Design/Build   ☐ Academic

☐ Land development   ☐ Managerial

☐ Residential design   ☐ Urban design

☐ Entrepreneurial   ☐ Park/Recreation design

☐ Other(s) (please specify as many as necessary)

26. Is this the last degree you are seeking? If not, please explain.

◯ Yes

◯ No (please explain below)

Social Factors that influenced your decision to Major in Landscape Architec...

103

27. For each of the following, please describe the importance (1: not at all important, 7: extremely important) on choosing landscape architecture as a major:

	1	2	3	4	5	6	7
Influence of Family (parents, siblings)	◯	◯	◯	◯	◯	◯	◯
Influence of Other Relatives (uncle, cousin, grandfather)	◯	◯	◯	◯	◯	◯	◯
Influence of Friends	◯	◯	◯	◯	◯	◯	◯
Influence of Significant Other (girlfriend/boyfriend, spouse)	◯	◯	◯	◯	◯	◯	◯
Influence of High School Mentors (counselor, teacher, employer)	◯	◯	◯	◯	◯	◯	◯
Influence of College Mentors (advisor, professor, employer)	◯	◯	◯	◯	◯	◯	◯

28. Were there other people in your life that influenced this decision? If so, please explain.

◯ No

◯ Yes (please explain below)

```
                                    ▲
                                    ▼
```

29. For each of the following, please describe the level of ENCOURAGEMENT (1: not at all encouraged, 7: extremely encouraged) received on choosing landscape architecture as a major:

	1	2	3	4	5	6	7
Family (parents, siblings)	◯	◯	◯	◯	◯	◯	◯
Other Relatives (uncle, cousin, grandmother)	◯	◯	◯	◯	◯	◯	◯
Friends	◯	◯	◯	◯	◯	◯	◯
Significant Other (girlfriend/boyfriend, spouse)	◯	◯	◯	◯	◯	◯	◯
High School Mentors (counselor, teacher, employer)	◯	◯	◯	◯	◯	◯	◯
College Mentors (advisor, professor, employer)	◯	◯	◯	◯	◯	◯	◯

30. Were there other people in your life that encouraged this decision? If so, please explain.

◯ No

◯ Yes (please explain below)

[text box]

31. Please share additional information about why you decided to study landscape architecture.

[text box]

APPENDIX

B. CODER AGREEMENT

15   Below, please describe HOW you became aware of Landscape Architecture.

		n	Agree	Kappa
AI	*Architecture Interest* Liked architectural (or planning) fields then chose landscape architecture; found architecture first then studied landscape archtiecture	119	81.6%	54.0%
AN	*Architecture Not* Didn't get into architecture program but got into landscape architecture; started in architecture, but didn't like it	24	98.8%	90.3%
AR	*Art Interest* Interested in art	18	96.7%	54.4%
DS	*Design Interest* Interested in design professions, left another design field (i.e. Interior Design)	66	93.7%	77.3%
FM	*Family Influence* my uncle is a practicing civil engineer, parents, siblings, etc.	39	100.0%	100.0%
FR	*Friend Influence* friend, significant other, neighbor	55	97.6%	90.7%
LI	*Landscaper Influence* Practicing Landscape Architect/Designer, Landscaper, Landscape Contractor, Landscape Firm, etc.	64	94.6%	80.4%
OD	*Outdoor Interest* Enjoy being outside, wanted a job that worked outside	23	96.7%	67.0%
PS	*Personal Searching* Searching online, career placement survey, found in university catalog/website, media/tv	144	86.1%	70.3%
PL	*Plant Interest* Interest in plants; enjoy horticulture	22	97.9%	80.0%
PE	*Prior Employment* I worked during the summers of high school for a landscape company,	24	99.7%	97.7%
SA	*Scholastic Advising* Class, Counselor, Advisor	49	97.3%	88.3%
UP	*University Program* I visited the program/school, I was told of the program at certain university, I was already at the university and changed to landscape architecture, I was going to this university anyway and found landscape architecture	99	91.6%	77.9%
OT	*Other* Response includes something other than above	52	90.7%	53.0%

798

14   94.5%   77.2%   **AVG**

            WEIGHTED

91.5%   77.8%   **AVG**

GOALS

24 What are your long-term career goals and how will the study of landscape architecture help you accomplish these goals?

		n	**Agree**	**Kappa**
AC	*Accomplishment*	67	88.6%	54.2%
	I want to feel accomplished in my career; I desire to be an established landscape architect;			
CL	*Continue Learning*	40	92.2%	48.1%
	Learn as much as I can; Get a higher degree;			
GC	*Golf Course Design*	8	100.0%	100.0%
EN	*Help Environment*	34	92.2%	35.3%
	Promote designs that make for healthier environments; Sustainability; Environmental friendly; Green design; Green roofs; Rain Gardens;			
HS	*Help Society*	68	84.6%	34.4%
	Public designs; Public work; Community involvement; Urban design;			
HE	*Higher Education*	27	97.3%	78.6%
	I would like to teach at a university;			
ID	*Interdisciplinary*	3	99.1%	
	I want to combine with architecture and interior design; I want to work with other disciplines;			
LD	*Land Development*	2	99.7%	66.5%
	Property development;			
MN	*Money*	20	97.6%	73.8%
	I hope to make lots of money;			
OC	*Own Company*	84	97.9%	94.3%
	I plan to have my own landscaping company; I already own my own company and hope to bring landscape architecture to it;			
CC	*Co-Own Company*	9	99.4%	87.2%
	I hope to be a partner of a landscape architecture firm;			
WM	*Water Management*	3	99.4%	49.8%
	Watershed management; water purification; stormwater management;			
WC	*Work for a Company*	84	93.7%	81.7%
	Get a job; Work at a firm;			
OT	*Other*	81	86.4%	54.1%
	None of the above.			

530

14

		Agree	Kappa	
		94.9%	66.0%	**AVG**
		91.8%	61.8%	**WEIGHTED AVG**

INFLUENCE

28b Were there other people in your life that influenced this decision? If so, please explain.

		n	Agree	Kappa
EP *Employer*		5	99.7%	88.7%
My boss during high school;				
FM *Family*		14	99.4%	92.0%
Children; siblings; parents; uncle; etc.				
FR *Friend*		8	99.4%	85.4%
Friend				
PL *Professional LA*		7	98.8%	59.5%
A Landscape Architect influenced my career path; A garden designer;				
SM *School Mentor*		7	99.7%	92.2%
High school advisor, teacher, coach; Advisor				
SF *Self*		6	99.1%	66.3%
My own decision				
OT *Other*		11	97.9%	52.5%
None of the above				
		58		

7

	Agree	Kappa	
	99.1%	**76.6%**	AVG
			WEIGHTED
	99.1%	**79.7%**	AVG

17   Why did you choose Landscape Architecture as your major?

		n	Agree	Kappa
OI *Outdoor Interest* I enjoy the outdoors;		86	96.4%	90.1%
PI *Planning Interest* I enjoy planning;		14	97.6%	58.8%
PL *Plant Interest* Interest in plants; Enjoy horticulture;		41	98.8%	94.2%
AR *Art Interest* Interested in art;		53	93.1%	71.2%
AI *Architecture Interest* I liked building growing up; Didn't get into architecture;		52	92.2%	62.4%
DI *Design Interest* I enjoy designing/creating beautiful spaces; design process; problem solving;		114	91.3%	79.2%
LI *Landscaping Interest* It was interesting; I enjoy landscaping; I had experience in the field;		74	88.6%	59.5%
WI *Water Interest* Stormwater, streams/watersheds		1	100.0%	100.0%
ER *Environmental Reasons* Environmental Reasons		58	97.0%	88.8%
HI *Human Interaction* Human/Nature interation; make a difference in the lives of people;		26	94.9%	49.2%
FI *Future Impact* Positive impact on the future; To make the world a better place;		33	93.7%	49.9%
MT *Mentored* I was mentored/advised/influenced into the major;		8	99.1%	76.5%
IB *Industry Breadth* It has so many different career paths/opportunities; Broadness of the field; Job availability/placement;		29	94.6%	52.1%
IR *Industry Reputation* I like the reputation of the field;		3	99.1%	-0.4%
PS *Passion* My passion aligns with landscape architecture;		48	94.0%	70.5%
GF Good Fit It was a good fit for my interests;		37	96.4%	78.7%
CG *Challenge* I chose it because it was challenging;		6	99.4%	79.7%
ID *Interdisciplinary* Combination of sciences and arts; Ability to work with other fields on the same project;		41	91.6%	44.0%
OT *Other* Response includes something other than above;		73	85.8%	44.4%
		797		
19			95.4%	66.5%	AVG
			93.8%	66.6%	WEIGHTED AVG

19b   Did you transfer into landscape architecture from another major? If so, please explain.

		n	**Agree**	**Kappa**
AN	Anthropology	2	100.0%	100.0%
	I transferred from anthropology			
AE	Architectural Engineering	2	100.0%	100.0%
	I transferred from architectural engineering;			
AT	Architecture	36	99.7%	98.4%
	I transferred from architecture;			
AR	Art	10	99.4%	88.6%
	I transferred from an art major			
BI	Biology	1	100.0%	100.0%
	I transferred from biology			
BS	Business	7	100.0%	100.0%
	I transferred from a business major; accounting; economics; marketing; etc.			
CU	Changed University	7	98.5%	43.9%
	I changed universities to study landscape architect			
CH	Chemistry	1	100.0%	100.0%
	I transferred from chemistry;			
CE	Civil Engineering	3	100.0%	100.0%
	I transferred from civil engineering;			
CM	Communications	0	100.0%	
	I transferred from communications			
ES	Environmental Science	3	100.0%	100.0%
	I transferred from environmental science; ecology;			
FM	Film	1	100.0%	100.0%
	I transferred from film			
GD	Graphic Design	4	99.7%	85.6%
	I transferred from graphic design;			
HT	Horticulture	2	100.0%	100.0%
	I transferred from horticulture or plant sciences			
ID	Interior Design	1	100.0%	100.0%
	I transferred from interior design;			
JN	Journalism	2	100.0%	100.0%
	I transferred from journalism			
KS	Kinesiology	1	100.0%	100.0%
	I transferred from kinesiology; fitness; physical education; etc.			
MF	Medical Fields	4	99.7%	85.6%
	Nursing; Pre-med;			
JM	No Jobs/Money	2	99.4%	0.0%
	I transferred out of a major that had no job or money potential;			
OE	Other Engineering	10	100.0%	100.0%
	I transferred from engineering; (none of the other engineering majors like Mechanical, Aerospace, Industrial, Biomedical, Electrical;)			
PB	Post Baccalaureate	4	98.8%	0.0%
	I finished another major then started landscape architecture;			
PS	Psychology	3	100.0%	100.0%
	I transferred from psychology			
SO	Sociology	1	100.0%	100.0%
	I transferred from sociology			
UD	Undeclared	11	99.4%	89.7%
	I chose landscape architecture after being undeclared; university studies;			
OT	Other	9	99.1%	79.5%
	None of the above			

	127		
25		99.8%	93.6%	AVG
				WEIGHTED
		99.6%	86.9%	AVG

MOTIVATION

22   What was most attractive to you about landscape architecture and what is most motivating to you now?

		n	Agree	Kappa
OI	*Outdoor Interest* I enjoy the outdoors; outdoor spaces	74	93.1%	77.5%
PI	*Planning Interest* I enjoy planning;	19	97.9%	76.3%
PL	*Plant Interest* Interest in plants; Enjoy horticulture;	15	97.9%	68.5%
AR	*Art Interest* Interested in art;	22	97.9%	80.0%
AI	*Architecture Interest* I liked building growing up; Didn't get into architecture;	17	97.6%	68.0%
DI	*Design Interest* I enjoy designing/creating beautiful spaces; design process; problem solving;	129	90.7%	79.3%
LI	*Landscaping Interest* It was interesting; I enjoy landscaping; I had experience in the field;	41	94.3%	66.9%
WI	*Water Interest* Stormwater, streams/watersheds, rain gardens	6	99.7%	90.8%
HI	*Human Interaction* Human/Nature interation; make a difference in the lives of people;	69	93.7%	78.2%
ER	*Environmental Reasons* I am an environmentalist; Interest in nature/natural resources; sustainability; Green movement; Creating wildlife habitat; ecology;	81	91.6%	73.9%
FI	*Future Impact* Positive impact on the future; To make the world a better place;	63	86.1%	35.4%
MT	*Mentoring* I was mentored/advised/influenced into the major;	8	100.0%	100.0%
IB	*Industry Breadth* Industry Breadth	55	91.9%	63.0%
IR	*Industry Reputation* I like the reputation of the field;	0	100.0%	
PS	*Passion* My passion aligns with landscape architecture;	22	98.2%	83.3%
GF	*Good Fit* It was a good fit for my interests;	6	99.7%	90.8%
CG	*Challenge* I chose it because it was challenging;	15	97.9%	68.5%
ID	*Interdisciplinary* Combination of sciences and arts; Ability to work with other fields on the same project;	9	98.5%	60.8%
OT	*Other* Response includes something other than above;	84	83.1%	41.8%
		735		

19   **95.2%**   **73.7%**   **AVG**

                                       WEIGHTED

                           92.4%   **68.6%**   **AVG**

23   What do you consider your passion and does it relate to landscape architecture?

		n	**Agree**	**Kappa**
AC	*Architecture*	8	99.4%	85.4%
AR	*Art* Art; Drawing;	41	99.1%	95.7%
BW	*Better World* Making the world a better place;	27	97.9%	85.7%
CR	*Cars* Cars; Auto racing;	5	100.0%	100.0%
CP	*Computers*	8	100.0%	100.0%
DC	*Design/Creativity*	105	96.1%	90.7%
DR	*Drafting*	4	99.7%	85.6%
EG	*Engineering*	2	100.0%	100.0%
EH	*Environment Help* Helping the environment; going green; being sustainable; environmental activism; Conservation; Restoration	41	98.5%	92.7%
FM	*Family*	8	99.7%	93.2%
GC	*Golf Course*	7	100.0%	100.0%
GR	*Green Roofs*	4	99.7%	85.6%
HS	*History*	2	100.0%	100.0%
IP	*Influence People* Positive impact on peoples lives; Client satisfaction; Community involvement; Social justice; Social interactions	44	95.8%	78.8%
LD	*Land Development*	2	100.0%	100.0%
LA	*Landscape Architecture*	138	91.3%	81.4%
LN	*Landscaping*	5	99.7%	88.7%
LR	*Learning*	2	99.7%	79.9%
LF	*Life*	8	99.4%	85.4%
MN	*Money*	1	100.0%	100.0%
MT	*Music/Theater*	17	99.7%	96.8%
NR	*Natural Resources* Watersheds; Water management; Wildlife;	8	100.0%	100.0%
OD	*Outdoors* Being outdoors; Connecting with nature; Hiking; Biking; Climbing; Etc.	52	99.1%	96.6%
PS	*Problem Solving* Solving problems; Making things work without flaw;	10	99.7%	88.7%
PG	*Photography*	6	100.0%	100.0%
PT	*Plants* Plants; Horticulture;	22	99.4%	95.1%
ST	*Spirituality* Religion;	2	100.0%	100.0%
SP	*Sports* Golf; Soccer; Hockey; Baseball; Basketball; Etc.	26	98.5%	89.0%
TV	*Travel*	5	100.0%	100.0%
UP	*Urban Planning* Urban planning; New urbanism;	14	97.0%	42.9%
OT	*Other* None of the above	76	81.9%	32.5%

700

31			99.0%	92.4%	**AVG**
			97.5%	92.4%	**WEIGHTED AVG**

EDUCATION

26b Is this the last degree you are seeking? If not, please explain.

		n	Agree	Kappa
AC	Architecture	23	100.0%	100.0%
	Additional degree in architecture; M Arch; MS Arch			
AR	Art	3	100.0%	100.0%
	Additional degree in art related fields			
AD	Associate Degree	2	100.0%	100.0%
	Associate degree (in general);			
BS	Business	10	99.4%	88.6%
	Additional degree in a business field			
CE	Civil Engineering	1	100.0%	100.0%
	Additional degree in civil engineering;			
ED	Education	6	99.1%	66.3%
	Additional degree in education			
EV	Environmental Design	2	100.0%	100.0%
	Additional degree in environmental design			
ES	Environmental Science	7	99.7%	92.2%
	Additional degree in environmental science; ecology; forestry;			
HT	Horticulture	6	100.0%	100.0%
	Additional degree in horticulture; Turfgrass management;			
ID	Interior Design	3	100.0%	100.0%
	Additional degree in interior design			
LA	Landscape Architecture	26	99.4%	95.7%
	Additional degree in landscape architecture; MLA; MSLA;			
MD	Masters Degree	103	94.6%	86.7%
	Masters degree (in general);			
PD	Ph.D. Degree	7	100.0%	100.0%
	Ph.D. (in general);			
PN	Planning	21	99.4%	94.7%
	Additional degree in planning			
SS	Social Sciences	3	99.7%	79.9%
	Psychology; Sociology; etc.			
OT	Other	65	91.3%	66.1%
	None of the above			

288

16   99.4%   94.6%   AVG

                                                                   97.3%   94.6%   WEIGHTED AVG

ENCOURAGEMENT

30b Were there other people in your life that encouraged this decision? If so, please explain.

			n	Agree	Kappa	
EP	Employer	My boss during high school;	5	100.0%	100.0%	
FM	Family	Children; siblings; parents; uncle; etc.	8	99.7%	93.2%	
FR	Friend	Friend; Family friend;	2	100.0%	100.0%	
PL	Professional LA	A Landscape Architect influenced my career path; A garden designer;	5	99.7%	88.7%	
SM	School Mentor	High school advisor, teacher, coach; Advisor	1	99.7%		
OT	Other	None of the above	7	99.7%	92.2%	
			28			
6				99.0%	92.4%	AVG
				97.5%	92.4%	WEIGHTED AVG

APPENDIX

C. GROUP DESCRIPTIVES (GENDER & AWARENESS)

Statistic	Total (n = 331)	Description	Male (n = 185)	Female (n = 114)	Aware (n = 183)	Not Awr (n = 143)
Age	23	Years old	22.93	22.39	21.64	24.46
Gender	62%	Male	N/A	N/A	64	59
	38%	Female			36	41
Hometown	32%	Rural	34	28	39	24
	53%	Suburban	54	53	51	55
	13%	Urban	12	18	9	19
Parents' Income	$79,000	(mean)	79,900	75,000	80,800	76,100
	$30,700	(sd)	31,900	29,100	30,100	31,600
Parents' Education (4-year degree)	54%	Father	56	48	56	52
	50%	Mother	51	53	51	50
	64%	At least one	65	63	65	63
	40%	Both	42	38	42	39
Other Considered Majors	17%	Architecture	16	19	19	15
	9%	Engineering	10	6	8	9
	9%	Business	11	4	8	10
	8%	Art/Graphic Ds.	5	13	7	9
Minor	30%	Have a minor	30	34	27	37
Favorite High School Classes	14%	Art	11	18	14	14
	12%	Math	11	12	12	10
	11%	History	14	7	12	11
	10%	English	9	9	8	11
	6%	PE	6	4	5	6
	5%	Drafting	7	3	6	5
	5%	Biology	5	6	4	7
Univ. Location	80%	Same state	83	75	79	81
Home to Univ.	92.7 [16.0-208.4]	Miles (median) (interquartile range)	87.5 [9.3-200.6]	94.7 [35.3-229.2]	103.4 [41.9-201.9]	68.3 [6.5-208.1]
More Education	46%	Of respondents	46	46	48	44
Anticipated Work	21%	Academic	23	21	19	25
	52%	Design/Build	54	49	51	55
	24%	Entrepreneurial	30	16	24	25
	15%	Managerial	22	7	18	13
	36%	Natural Resource	36	35	36	38
	63%	Urban Design	65	63	64	64
	37%	Land Development	42	30	37	39
	34%	Commercial Design	38	30	35	34
	53%	Residential Design	56	49	57	50
	51%	Ecol. Restoration	52	51	50	52
	36%	Land Use Plan/Policy	35	33	33	41
	70%	Park/Recreation	68	76	71	71
Aware of LA	12%	Before high school	12	6	21	0
	44%	During high school	45	46	79	0
	44%	After high school	43	48	0	100
Declared LA as Major	51%	Freshman	50	47	71	21
	36%	Sophomore	37	38	17	60
Transfer into LA	32%	From another major	29	34	15	52
Choice Univ. vs. LA	52%	Chose university first	47	54	36	69
	48%	Chose LA first	49	46	60	30
University Choice Factors	8%	Recruited	9	4	9	6
	52%	Univ. reputation	54	53	59	45
	74%	Univ. location	76	72	75	74
	33%	Univ. setting	31	39	38	28
	23%	LA faculty reputation	22	25	28	18
	42%	LA dept. reputation	43	43	56	26
	41%	Financial	43	42	43	40
	40%	Family/friends	37	47	45	35

Statistic	Total (n = 331)	Description	Male (n = 185)	Female (n = 114)	Aware (n = 183)	Not Awr (n = 143)
Cluster HS	28%	Cluster 1	26	30	28	28
	30%	Cluster 2	32	27	31	28
	19%	Cluster 3	20	18	19	21
	23%	Cluster 4	22	25	22	23
Cluster Major	36%	Cluster 1	35	37	33	39
	14%	Cluster 2	16	13	18	9
	22%	Cluster 3	22	22	22	21
	28%	Cluster 4	28	28	26	31
Cluster Factor	8%	Cluster 1	9	4	9	6
	21%	Cluster 2	21	23	21	21
	9%	Cluster 3	11	5	8	10
	16%	Cluster 4	14	17	13	21
	19%	Cluster 5	20	18	17	20
	20%	Cluster 6	18	23	24	16
	8%	Cluster 7	7	11	9	6
Cluster Career	15%	Cluster 1	10	23	14	18
	15%	Cluster 2	21	6	16	13
	13%	Cluster 3	14	14	12	15
	15%	Cluster 4	16	11	13	15
	27%	Cluster 5	25	31	31	23
	16%	Cluster 6	15	15	15	17
Cluster AWARE	17%	Cluster 1	18	16	18	16
	14%	Cluster 2	17	11	12	18
	70%	Cluster 3	65	73	71	66
Cluster GOALS	13%	Cluster 1	12	13	12	15
	19%	Cluster 2	24	12	25	13
	53%	Cluster 3	49	57	51	55
	15%	Cluster 4	15	18	14	18
Cluster CHOICE	19%	Cluster 1	21	17	20	18
	10%	Cluster 2	7	13	13	8
	8%	Cluster 3	9	9	10	6
	18%	Cluster 4	21	15	15	19
	8%	Cluster 5	7	10	5	12
	12%	Cluster 6	16	9	13	12
	14%	Cluster 7	11	18	14	15
	8%	Cluster 8	8	8	10	7
	2%	Cluster 9	2	2	1	3
Cluster MOTIVATION	13%	Cluster 1	14	12	13	13
	7%	Cluster 2	7	8	6	7
	6%	Cluster 3	7	7	6	8
	44%	Cluster 4	41	47	48	39
	2%	Cluster 5	3	3	2	3
	1%	Cluster 6	2	1	2	1
	3%	Cluster 7	3	3	3	3
	12%	Cluster 8	10	14	12	13
	11%	Cluster 9	15	5	9	15
Cluster PASSION	6%	Cluster 1	7	4	6	7
	9%	Cluster 2	9	9	11	6
	40%	Cluster 3	44	29	41	36
	5%	Cluster 4	7	4	4	6
	10%	Cluster 5	8	12	9	11
	14%	Cluster 6	12	18	13	16
	11%	Cluster 7	8	16	13	8
	2%	Cluster 8	2	4	1	4
	4%	Cluster 9	4	4	3	5
Cluster ZIP	3%	Cluster 1	2	3	2	3
	5%	Cluster 2	6	3	5	5
	11%	Cluster 3	12	13	10	13
	19%	Cluster 4	18	19	25	11
	27%	Cluster 5	26	28	24	31
	4%	Cluster 6	4	4	4	5
	32%	Cluster 7	32	30	30	33

Statistic	Total (n = 331)	Description	Male (n = 185)	Female (n = 114)	Aware (n = 183)	Not Awr (n = 143)
Open AWARE	"21 % AI"	Architecture Interest	"19 % AI"	"26 % AI"	"19 % AI"	"24 % AI"
	"5 % AN"	Architecture Not	"5 % AN"	"4 % AN"	"3 % AN"	"7 % AN"
	"2 % AR"	Art Interest	"2 % AR"	"3 % AR"	"3 % AR"	"2 % AR"
	"16 % DS"	Design Interest	"18 % DS"	"14 % DS"	"17 % DS"	"15 % DS"
	"12 % FM"	Family Influence	"10 % FM"	"12 % FM"	"19 % FM"	"5 % FM"
	"16 % FR"	Friend Influence	"17 % FR"	"13 % FR"	"13 % FR"	"21 % FR"
	"16 % LI"	Landscaper Influence	"17 % LI"	"11 % LI"	"21 % LI"	"10 % LI"
	"8 % OD"	Outdoor Interest	"9 % OD"	"6 % OD"	"7 % OD"	"9 % OD"
	"34 % PS"	Personal Searching	"31 % PS"	"33 % PS"	"37 % PS"	"31 % PS"
	"5 % PL"	Plant Interest	"7 % PL"	"3 % PL"	"7 % PL"	"3 % PL"
	"6 % PE"	Prior Employment	"8 % PE"	"4 % PE"	"5 % PE"	"8 % PE"
	"26 % SA"	Scholastic Advising	"25 % SA"	"31 % SA"	"25 % SA"	"27 % SA"
	"32 % UP"	University Program	"25 % UP"	"43 % UP"	"25 % UP"	"43 % UP"
	"11 % OT"	Other	"10 % OT"	"11 % OT"	"13 % OT"	"8 % OT"
	2.1	(mean)	2.043	2.158	2.131	2.133
	1.04	(sd)	1.08	0.98	1.01	1.02
Open GOALS	"12 % AC"	Accomplishment	"15 % AC"	"10 % AC"	"13 % AC"	"11 % AC"
	"10 % CL"	Continue Learning	"9 % CL"	"13 % CL"	"12 % CL"	"8 % CL"
	"2 % GC"	Golf Course Design	"4 % GC"	"1 % GC"	"2 % GC"	"3 % GC"
	"13 % EN"	Help Environment	"12 % EN"	"13 % EN"	"11 % EN"	"15 % EN"
	"21 % HS"	Help Society	"18 % HS"	"26 % HS"	"17 % HS"	"26 % HS"
	"5 % HE"	Higher Education	"8 % HE"	"3 % HE"	"6 % HE"	"4 % HE"
	"6 % MN"	Money	"8 % MN"	"4 % MN"	"5 % MN"	"7 % MN"
	"24 % OC"	Own Company	"28 % OC"	"18 % OC"	"28 % OC"	"19 % OC"
	"2 % CC"	Co-Own Company	"3 % CC"	"1 % CC"	"3 % CC"	"1 % CC"
	"24 % WC"	Work for a Company	"25 % WC"	"23 % WC"	"25 % WC"	"24 % WC"
	"15 % OT"	Other	"15 % OT"	"18 % OT"	"14 % OT"	"17 % OT"
	1.347	(mean)	1.449	1.281	1.377	1.35
	1.02	(sd)	1.02	1	1.01	1.03
Open ENCOURAGEMENT	"2 % EP"	Employer	"3 % EP"	"1 % EP"	"3 % EP"	"1 % EP"
	"2 % FM"	Family	"3 % FM"	"2 % FM"	"2 % FM"	"3 % FM"
	"1 % FR"	Friend	"1 % FR"	"1 % FR"	"N % FR"	"1 % FR"
	"2 % PL"	Professional LA	"2 % PL"	"1 % PL"	"2 % PL"	"1 % PL"
	"2 % OT"	Other	"2 % OT"	"4 % OT"	"2 % OT"	"3 % OT"
	0.085	(mean)	0.103	0.079	0.082	0.091
	0.35	(sd)	0.38	0.33	0.35	0.35
Open EDUCATION	"8 % AC"	Architecture	"6 % AC"	"9 % AC"	"8 % AC"	"8 % AC"
	"1 % AR"	Art	"2 % AR"	"1 % AR"	"2 % AR"	"1 % AR"
	"1 % AD"	Associate Degree	"1 % AD"	"N % AD"	"1 % AD"	"N % AD"
	"4 % BS"	Business	"4 % BS"	"4 % BS"	"4 % BS"	"4 % BS"
	"0 % CE"	Civil Engineering	"1 % CE"	"N % CE"	"N % CE"	"1 % CE"
	"1 % ED"	Education	"1 % ED"	"1 % ED"	"1 % ED"	"1 % ED"
	"1 % EV"	Environment Design	"1 % EV"	"1 % EV"	"2 % EV"	"N % EV"
	"4 % ES"	Environment Science	"4 % ES"	"4 % ES"	"4 % ES"	"4 % ES"
	"2 % HT"	Horticulture	"3 % HT"	"1 % HT"	"2 % HT"	"2 % HT"
	"1 % ID"	Interior Design	"1 % ID"	"3 % ID"	"1 % ID"	"2 % ID"
	"7 % LA"	LA	"8 % LA"	"7 % LA"	"9 % LA"	"6 % LA"
	"30 % MD"	Masters Degree	"29 % MD"	"34 % MD"	"29 % MD"	"33 % MD"
	"2 % PD"	Ph.D. Degree	"2 % PD"	"3 % PD"	"3 % PD"	"1 % PD"
	"7 % PN"	Planning	"7 % PN"	"9 % PN"	"7 % PN"	"8 % PN"
	"1 % SS"	Social Sciences	"NA % SS"	"2 % SS"	"1 % SS"	"1 % SS"
	"11 % OT"	Other	"14 % OT"	"9 % OT"	"9 % OT"	"13 % OT"
	0.807	(mean)	0.822	0.851	0.798	0.846
	1.11	(sd)	1.1	1.15	1.16	1.07

Statistic	Total (n = 331)	Description	Male (n = 185)	Female (n = 114)	Aware (n = 183)	Not Awr (n = 143)
Open PASSION	"1 % AC"	Architecture	"1 % AC"	"1 % AC"	"2 % AC"	"1 % AC"
	"13 % AR"	Art	"11 % AR"	"18 % AR"	"14 % AR"	"11 % AR"
	"4 % BW"	Better World	"4 % BW"	"4 % BW"	"3 % BW"	"5 % BW"
	"2 % CR"	Cars	"2 % CR"	"N % CR"	"1 % CR"	"2 % CR"
	"2 % CP"	Computers	"3 % CP"	"1 % CP"	"1 % CP"	"4 % CP"
	"22 % DC"	Design/Creativity	"18 % DC"	"28 % DC"	"19 % DC"	"26 % DC"
	"0 % DR"	Drafting	"N % DR"	"1 % DR"	"1 % DR"	"N % DR"
	"0 % EG"	Engineering	"N % EG"	"1 % EG"	"1 % EG"	"N % EG"
	"10 % EH"	Environment Help	"10 % EH"	"11 % EH"	"12 % EH"	"8 % EH"
	"3 % FM"	Family	"3 % FM"	"1 % FM"	"2 % FM"	"3 % FM"
	"2 % GC"	Golf Course	"3 % GC"	"1 % GC"	"2 % GC"	"2 % GC"
	"0 % GR"	Green Roofs	"1 % GR"	"N % GR"	"1 % GR"	"N % GR"
	"1 % HS"	History	"N % HS"	"1 % HS"	"1 % HS"	"N % HS"
	"19 % IP"	Influence People	"14 % IP"	"29 % IP"	"20 % IP"	"18 % IP"
	"1 % LD"	Land Development	"1 % LD"	"1 % LD"	"1 % LD"	"1 % LD"
	"4 % LA"	LA	"6 % LA"	"2 % LA"	"4 % LA"	"3 % LA"
	"2 % LN"	Landscaping	"3 % LN"	"N % LN"	"3 % LN"	"1 % LN"
	"1 % LR"	Learning	"1 % LR"	"N % LR"	"N % LR"	"1 % LR"
	"4 % LF"	Life	"5 % LF"	"3 % LF"	"5 % LF"	"3 % LF"
	"0 % MN"	Money	"1 % MN"	"N % MN"	"1 % MN"	"N % MN"
	"5 % MT"	Music/Theatre	"6 % MT"	"4 % MT"	"4 % MT"	"6 % MT"
	"4 % NR"	Natural Resources	"5 % NR"	"2 % NR"	"4 % NR"	"3 % NR"
	"16 % OD"	Outdoors	"16 % OD"	"17 % OD"	"16 % OD"	"17 % OD"
	"2 % PS"	Philosophy	"2 % PS"	"1 % PS"	"1 % PS"	"2 % PS"
	"2 % PG"	Photography	"2 % PG"	"2 % PG"	"1 % PS"	"3 % PG"
	"7 % PT"	Plants	"5 % PT"	"9 % PT"	"7 % PT"	"6 % PT"
	"1 % ST"	Spirituality	"2 % ST"	"1 % ST"	"1 % ST"	"1 % ST"
	"7 % SP"	Sports	"11 % SP"	"3 % SP"	"7 % SP"	"8 % SP"
	"2 % TV"	Travel	"1 % TV"	"3 % TV"	"1 % TV"	"2 % TV"
	"2 % UP"	Urban Planning	"2 % UP"	"4 % UP"	"1 % UP"	"4 % UP"
	"8 % OT"	Other	"10 % OT"	"6 % OT"	"7 % OT"	"9 % OT"
	1.967	(mean)	2	2.061	1.94	2.056
	1.31	(sd)	1.34	1.23	1.24	1.38
Open MOTIVATION	"12 % OI"	Outdoor Interest	"11 % OI"	"14 % OI"	"13 % OI"	"10 % OI"
	"3 % PI"	Planning Interest	"3 % PI"	"4 % PI"	"3 % PI"	"3 % PI"
	"5 % PL"	Plant Interest	"5 % PL"	"6 % PL"	"4 % PL"	"6 % PL"
	"7 % AR"	Art Interest	"6 % AR"	"8 % AR"	"6 % AR"	"8 % AR"
	"3 % AI"	Architecture Interest	"5 % AI"	"2 % AI"	"3 % AI"	"3 % AI"
	"45 % DI"	Design Interest	"49 % DI"	"44 % DI"	"46 % DI"	"45 % DI"
	"5 % LI"	Landscaping Interest	"6 % LI"	"4 % LI"	"5 % LI"	"6 % LI"
	"1 % WI"	Water Interest	"2 % WI"	"1 % WI"	"2 % WI"	"1 % WI"
	"29 % HI"	Human Interaction	"29 % HI"	"34 % HI"	"30 % HI"	"29 % HI"
	"25 % ER"	Environment Reasons	"28 % ER"	"22 % ER"	"26 % ER"	"24 % ER"
	"11 % FI"	Future Impact	"13 % FI"	"11 % FI"	"10 % FI"	"13 % FI"
	"3 % MT"	Mentoring	"2 % MT"	"4 % MT"	"3 % MT"	"3 % MT"
	"21 % IB"	Industry Breadth	"19 % IB"	"25 % IB"	"22 % IB"	"20 % IB"
	"6 % PS"	Passion	"6 % PS"	"6 % PS"	"8 % PS"	"4 % PS"
	"2 % GF"	Good Fit	"2 % GF"	"2 % GF"	"2 % GF"	"1 % GF"
	"9 % CG"	Challenge	"8 % CG"	"13 % CG"	"9 % CG"	"10 % CG"
	"5 % ID"	Interdisciplinary	"5 % ID"	"4 % ID"	"4 % ID"	"6 % ID"
	"13 % OT"	Other	"16 % OT"	"8 % OT"	"10 % OT"	"17 % OT"
	2.057	(mean)	2.13	2.123	2.066	2.091
	1.46	(sd)	1.43	1.49	1.47	1.43

Statistic	Total (n = 331)	Description	Male (n = 185)	Female (n = 114)	Aware (n = 183)	Not Awr (n = 143)
Open TRANSFER	"1 % AN"	Anthropology	"1 % AN"	"N % AN"	"N % AN"	"1 % AN"
	"1 % AE"	Arch. Engineering	"N % AE"	"2 % AE"	"1 % AE"	"N % AE"
	"11 % AT"	Architecture	"9 % AT"	"13 % AT"	"6 % AT"	"17 % AT"
	"3 % AR"	Art	"2 % AR"	"5 % AR"	"1 % AR"	"6 % AR"
	"0 % BI"	Biology	"N % BI"	"1 % BI"	"N % BI"	"1 % BI"
	"3 % BS"	Business	"3 % BS"	"1 % BS"	"3 % BS"	"3 % BS"
	"3 % CU"	Changed University	"2 % CU"	"5 % CU"	"2 % CU"	"5 % CU"
	"0 % CH"	Chemistry	"1 % CH"	"N % CH"	"N % CH"	"1 % CH"
	"1 % CE"	Civil Engineering	"N % CE"	"N % CE"	"1 % CE"	"1 % CE"
	"1 % ES"	Environment Science	"1 % ES"	"2 % ES"	"2 % ES"	"1 % ES"
	"0 % FM"	Film	"N % FM"	"1 % FM"	"N % FM"	"1 % FM"
	"1 % GD"	Graphic Design	"1 % GD"	"2 % GD"	"N % GD"	"2 % GD"
	"1 % HT"	Horticulture	"1 % HT"	"N % HT"	"1 % HT"	"1 % HT"
	"0 % ID"	Interior Design	"N % ID"	"1 % ID"	"N % ID"	"1 % ID"
	"1 % JN"	Journalism	"1 % JN"	"1 % JN"	"N % JN"	"1 % JN"
	"0 % KS"	Kinesiology	"N % KS"	"1 % KS"	"N % KS"	"1 % KS"
	"1 % MF"	Medical Fields	"2 % MF"	"1 % MF"	"N % MF"	"3 % MF"
	"2 % JM"	No Jobs/Money	"3 % JM"	"1 % JM"	"N % JM"	"4 % JM"
	"3 % OE"	Other Engineering	"4 % OE"	"2 % OE"	"2 % OE"	"5 % OE"
	"1 % PB"	Post Baccalaureate	"2 % PB"	"1 % PB"	"1 % PB"	"1 % PB"
	"1 % PS"	Psychology	"N % PS"	"3 % PS"	"N % PS"	"2 % PS"
	"0 % SO"	Sociology	"1 % SO"	"N % SO"	"1 % SO"	"N % SO"
	"2 % UD"	Undeclared	"1 % UD"	"4 % UD"	"1 % UD"	"4 % UD"
	"2 % OT"	Other	"3 % OT"	"2 % OT"	1 % OT"	"4 % OT"
	0.393	(mean)	0.351	0.465	0.202	0.65
	0.67	(sd)	0.63	0.74	0.53	0.75
Open INFLUENCE	"2 % EP"	Employer	"3 % EP"	"N % EP"	"2 % EP"	"1 % EP"
	"4 % FM"	Family	"4 % FM"	"4 % FM"	"4 % FM"	"5 % FM"
	"2 % FR"	Friend	"3 % FR"	"1 % FR"	"3 % FR"	"2 % FR"
	"0 % LS"	LA Student	"1 % LS"	"N % LS"	"N % LS"	"1 % LS"
	"3 % PL"	Professional LA	"4 % PL"	"1 % PL"	"3 % PL"	"3 % PL"
	"2 % SM"	School Mentor	"3 % SM"	"2 % SM"	"3 % SM"	"2 % SM"
	"2 % SF"	Self	"2 % SF"	"3 % SF"	"2 % SF"	"3 % SF"
	"2 % OT"	Other	"3 % OT"	"1 % OT"	"2 % OT"	"2 % OT"
	0.178	(mean)	0.222	0.105	0.175	0.189
	0.54	(sd)	0.61	0.36	0.55	0.54
Open CHOICE	"20 % OI"	Outdoor Interest	"17 % OI"	"25 % OI"	"21 % OI"	"20 % OI"
	"2 % PI"	Planning Interest	"3 % PI"	"2 % PI"	"2 % PI"	"3 % PI"
	"11 % PL"	Plant Interest	"8 % PL"	"17 % PL"	"12 % PL"	"10 % PL"
	"17 % AR"	Art Interest	"15 % AR"	"18 % AR"	"19 % AR"	"15 % AR"
	"15 % AI"	Architecture Interest	"13 % AI"	"16 % AI"	"18 % AI"	"11 % AI"
	"40 % DI"	Design Interest	"39 % DI"	"44 % DI"	"39 % DI"	"43 % DI"
	"17 % LI"	Landscaping Interest	"15 % LI"	"18 % LI"	"20 % LI"	"15 % LI"
	"20 % HI"	Human Interaction	"21 % HI"	"22 % HI"	"22 % HI"	"19 % HI"
	"11 % ER"	Environment Reasons	"12 % ER"	"11 % ER"	"13 % ER"	"8 % ER"
	"4 % FI"	Future Impact	"5 % FI"	"3 % FI"	"3 % FI"	"5 % FI"
	"4 % MT"	Mentored	"3 % MT"	"4 % MT"	"4 % MT"	"3 % MT"
	"11 % IB"	Industry Breadth	"12 % IB"	"9 % IB"	"9 % IB"	"13 % IB"
	"8 % PS"	Passion	"8 % PS"	"8 % PS"	"8 % PS"	"8 % PS"
	"10 % GF"	Good Fit	"8 % GF"	"12 % GF"	"6 % GF"	"15 % GF"
	"2 % CG"	Challenge	"3 % CG"	"2 % CG"	"6 % GF"	"1 % CG"
	"11 % ID"	Interdisciplinary	"9 % ID"	"13 % ID"	"12 % ID"	"10 % ID"
	"16 % OT"	Other	"21 % OT"	"11 % OT"	"16 % OT"	"16 % OT"
	2.178	(mean)	2.108	2.333	2.257	2.154
	1.24	(sd)	1.27	1.26	1.24	1.19

APPENDIX

D. GROUP DESCRIPTIVES (SELECTION & UNIVERSITIES)

Statistic	Total (n = 331)	Description	Univ (n = 162)	LA (n = 151)	PSU (n = 47)	WSU (n = 46)
Age	23	Years old	22.2	23.4	20.6	22.1
Gender	62%	Male	84	63	65	71
	38%	Female	16	37	35	29
Hometown	32%	Rural	31	34	38	43
	53%	Suburban	52	54	45	46
	13%	Urban	15	12	15	11
Parents' Income	$79,000	(mean)	80,000	78,600	84,500	82,000
	$30,700	(sd)	30,200	30,900	30,500	30,000
Parents' Education (4-year degree)	54%	Father	56	52	48	52
	50%	Mother	55	45	52	41
	64%	At least one	68	61	59	59
	40%	Both	43	38	41	34
Other Considered Majors	17%	Architecture	19	16	31	11
	9%	Engineering	10	6	6	12
	9%	Business	8	9	6	5
	8%	Art/Graphic Ds.	8	8	8	4
Minor	30%	Have a minor	31	30	11	28
Favorite High School Classes	14%	Art	13	15	17	12
	12%	Math	13	9	14	7
	11%	History	11	13	7	9
	10%	English	10	9	8	8
	6%	PE	5	5	6	13
	5%	Drafting	5	5	5	8
	5%	Biology	6	5	4	4
Univ. Location	80%	Same state	84	76	79	91
Home to Univ.	92.7 [16.0-208.4]	Miles (median) (interquartile range)	65.4 [9.2-165.1]	116 [48.5-240.2]	105 [56.8-135.2]	240.2 [62.4-264.5]
More Education	46%	Of respondents	46	48	45	22
Anticipated Work	21%	Academic	20	25	19	17
	52%	Design/Build	51	56	55	54
	24%	Entrepreneurial	21	28	15	26
	15%	Managerial	14	17	13	11
	36%	Natural Resource	38	37	28	24
	63%	Urban Design	67	64	70	61
	37%	Land Development	40	36	38	39
	34%	Commercial Design	35	35	32	57
	53%	Residential Design	54	56	51	78
	51%	Ecol. Restoration	51	54	49	44
	36%	Land Use Plan/Policy	39	34	43	26
	70%	Park/Recreation	73	72	68	76
Aware of LA	12%	Before high school	8	14	4	11
	44%	During high school	33	58	81	48
	44%	After high school	59	28	15	41
Declared LA as Major	51%	Freshman	38	62	77	50
	36%	Sophomore	46	25	9	39
Transfer into LA	32%	From another major	44	18	15	17
Choice Univ. vs. LA	52%	Chose university first	N/A	N/A	49	50
	48%	Chose LA first			45	46
University Choice Factors	8%	Recruited	9	6	6	4
	52%	Univ. reputation	48	58	81	41
	74%	Univ. location	73	81	72	61
	33%	Univ. setting	33	34	38	30
	23%	LA faculty reputation	19	29	38	15
	42%	LA dept. reputation	33	55	72	26
	41%	Financial	47	37	21	41
	40%	Family/friends	49	32	53	39

Statistic	Total (n = 331)	Description	Univ (n = 162)	LA (n = 151)	PSU (n = 47)	WSU (n = 46)
Cluster HS	28%	Cluster 1	27	31	23	33
	30%	Cluster 2	30	26	36	37
	19%	Cluster 3	19	20	17	24
	23%	Cluster 4	24	23	23	7
Cluster Major	36%	Cluster 1	43	28	32	46
	14%	Cluster 2	12	16	11	26
	22%	Cluster 3	16	30	26	15
	28%	Cluster 4	30	25	32	13
Cluster Factor	8%	Cluster 1	10	6	6	4
	21%	Cluster 2	22	22	19	22
	9%	Cluster 3	10	8	2	9
	16%	Cluster 4	14	21	11	20
	19%	Cluster 5	18	15	19	30
	20%	Cluster 6	16	25	38	9
	8%	Cluster 7	12	4	4	7
Cluster Career	15%	Cluster 1	19	13	11	11
	15%	Cluster 2	12	17	11	11
	13%	Cluster 3	14	14	15	11
	15%	Cluster 4	10	10	15	4
	27%	Cluster 5	28	27	30	48
	16%	Cluster 6	17	15	20	15
Cluster AWARE	17%	Cluster 1	17	18	11	17
	14%	Cluster 2	15	14	15	26
	70%	Cluster 3	69	68	75	57
Cluster GOALS	13%	Cluster 1	14	13	21	2
	19%	Cluster 2	16	23	9	37
	53%	Cluster 3	53	52	51	46
	15%	Cluster 4	18	13	19	15
Cluster CHOICE	19%	Cluster 1	17	22	30	20
	10%	Cluster 2	9	13	11	13
	8%	Cluster 3	7	10	6	0
	18%	Cluster 4	19	11	15	20
	8%	Cluster 5	10	6	2	7
	12%	Cluster 6	11	14	15	24
	14%	Cluster 7	14	16	9	11
	8%	Cluster 8	11	7	11	4
	2%	Cluster 9	3	1	2	2
Cluster MOTIVATION	13%	Cluster 1	12	13	15	9
	7%	Cluster 2	7	6	6	7
	6%	Cluster 3	7	6	6	9
	44%	Cluster 4	38	47	49	35
	2%	Cluster 5	3	3	4	2
	1%	Cluster 6	2	1	2	0
	3%	Cluster 7	4	3	2	0
	12%	Cluster 8	15	11	9	22
	11%	Cluster 9	12	11	6	17
Cluster PASSION	6%	Cluster 1	6	7	9	7
	9%	Cluster 2	4	13	9	4
	40%	Cluster 3	38	38	43	35
	5%	Cluster 4	5	5	6	11
	10%	Cluster 5	10	10	6	13
	14%	Cluster 6	18	11	13	15
	11%	Cluster 7	12	10	9	13
	2%	Cluster 8	3	2	2	0
	4%	Cluster 9	4	4	4	2
Cluster ZIP	3%	Cluster 1	1	5	0	0
	5%	Cluster 2	4	6	0	0
	11%	Cluster 3	13	10	0	0
	19%	Cluster 4	18	20	85	0
	27%	Cluster 5	31	25	0	87
	4%	Cluster 6	5	3	15	0
	32%	Cluster 7	29	33	0	13

Statistic	Total (n = 331)	Description	Univ (n = 162)	LA (n = 151)	PSU (n = 47)	WSU (n = 46)
Open AWARE	"21 % AI"	Architecture Interest	"24 % AI"	"19 % AI"	"32 % AI"	"20 % AI"
	"5 % AN"	Architecture Not	"7 % AN"	"3 % AN"	"15 % AN"	"7 % AN"
	"2 % AR"	Art Interest	"2 % AR"	"3 % AR"	"2 % AR"	"4 % AR"
	"16 % DS"	Design Interest	"18 % DS"	"14 % DS"	"9 % DS"	"17 % DS"
	"12 % FM"	Family Influence	"10 % FM"	"15 % FM"	"13 % FM"	"13 % FM"
	"16 % FR"	Friend Influence	"20 % FR"	"13 % FR"	"9 % FR"	"24 % FR"
	"16 % LI"	Landscaper Influence	"15 % LI"	"17 % LI"	"13 % LI"	"11 % LI"
	"8 % OD"	Outdoor Interest	"8 % OD"	"9 % OD"	"N % OD"	"7 % OD"
	"34 % PS"	Personal Searching	"32 % PS"	"38 % PS"	"38 % PS"	"30 % PS"
	"5 % PL"	Plant Interest	"3 % PL"	"7 % PL"	"N % PL"	"9 % PL"
	"6 % PE"	Prior Employment	"3 % PE"	"9 % PE"	"N % PE"	"11 % PE"
	"26 % SA"	Scholastic Advising	"25 % SA"	"26 % SA"	"23 % SA"	"30 % SA"
	"32 % UP"	University Program	"44 % UP"	"23 % UP"	"32 % UP"	"30 % UP"
	"11 % OT"	Other	"8 % OT"	"13 % OT"	"6 % OT"	"9 % OT"
	2.1	(mean)	2.21	2.099	1.915	2.217
	1.04	(sd)	1.03	0.99	0.95	0.94
Open GOALS	"12 % AC"	Accomplishment	"11 % AC"	"14 % AC"	"17 % AC"	"22 % AC"
	"10 % CL"	Continue Learning	"10 % CL"	"11 % CL"	"6 % CL"	"13 % CL"
	"2 % GC"	Golf Course Design	"2 % GC"	"3 % GC"	"2 % GC"	"4 % GC"
	"13 % EN"	Help Environment	"14 % EN"	"13 % EN"	"21 % EN"	"2 % EN"
	"21 % HS"	Help Society	"24 % HS"	"19 % HS"	"21 % HS"	"11 % HS"
	"5 % HE"	Higher Education	"6 % HE"	"5 % HE"	"N % HE"	"7 % HE"
	"6 % MN"	Money	"7 % MN"	"5 % MN"	"9 % MN"	"7 % MN"
	"24 % OC"	Own Company	"19 % OC"	"30 % OC"	"11 % OC"	"39 % OC"
	"2 % CC"	Co-Own Company	"1 % CC"	"3 % CC"	"2 % CC"	"2 % CC"
	"24 % WC"	Work for a Company	"27 % WC"	"25 % WC"	"21 % WC"	"35 % WC"
	"15 % OT"	Other	"18 % OT"	"13 % OT"	"19 % OT"	"15 % OT"
	1.347	(mean)	1.395	1.397	1.298	1.565
	1.02	(sd)	0.96	1.07	0.95	0.78
Open ENCOURAGEMENT	"2 % EP"	Employer	"1 % EP"	"3 % EP"	"N % EP"	"N % EP"
	"2 % FM"	Family	"2 % FM"	"1 % FM"	"2 % FM"	"N % FM"
	"1 % FR"	Friend	"1 % FR"	"1 % FR"	"2 % FR"	"N % FR"
	"2 % PL"	Professional LA	"N % PL"	"3 % PL"	"2 % PL"	"N % PL"
	"2 % OT"	Other	"3 % OT"	"1 % OT"	"2 % OT"	"N % OT"
	0.085	(mean)	0.068	0.099	0.085	0
	0.35	(sd)	0.3	0.4	0.35	0
Open EDUCATION	"8 % AC"	Architecture	"9 % AC"	"7 % AC"	"4 % AC"	"N % AC"
	"1 % AR"	Art	"1 % AR"	"2 % AR"	"2 % AR"	"2 % AR"
	"1 % AD"	Associate Degree	"N % AD"	"1 % AD"	"2 % AD"	"N % AD"
	"4 % BS"	Business	"4 % BS"	"5 % BS"	"2 % BS"	"2 % BS"
	"0 % CE"	Civil Engineering	"1 % CE"	"N % CE"	"N % CE"	"N % CE"
	"1 % ED"	Education	"1 % ED"	"1 % ED"	"2 % ED"	"N % ED"
	"1 % EV"	Environment Design	"1 % EV"	"1 % EV"	"N % EV"	"N % EV"
	"4 % ES"	Environment Science	"3 % ES"	"5 % ES"	"N % ES"	"2 % ES"
	"2 % HT"	Horticulture	"1 % HT"	"3 % HT"	"N % HT"	"7 % HT"
	"1 % ID"	Interior Design	"2 % ID"	"1 % ID"	"N % ID"	"N % ID"
	"7 % LA"	LA	"7 % LA"	"8 % LA"	"4 % LA"	"N % LA"
	"30 % MD"	Masters Degree	"36 % MD"	"26 % MD"	"23 % MD"	"13 % MD"
	"2 % PD"	Ph.D. Degree	"2 % PD"	"2 % PD"	"N % PD"	"2 % PD"
	"7 % PN"	Planning	"10 % PN"	"5 % PN"	"4 % PN"	"N % PN"
	"1 % SS"	Social Sciences	"1 % SS"	"1 % SS"	"N % SS"	"N % SS"
	"11 % OT"	Other	"10 % OT"	"12 % OT"	"6 % OT"	"4 % OT"
	0.807	(mean)	0.901	0.781	0.511	0.326
	1.11	(sd)	1.14	1.12	0.86	0.7

Statistic	Total (n = 331)	Description	Univ (n = 162)	LA (n = 151)	PSU (n = 47)	WSU (n = 46)
Open PASSION	"1 % AC"	Architecture	"1 % AC"	"1 % AC"	"N % AC"	"2 % AC"
	"13 % AR"	Art	"14 % AR"	"13 % AR"	"13 % AR"	"15 % AR"
	"4 % BW"	Better World	"4 % BW"	"4 % BW"	"4 % BW"	"2 % BW"
	"2 % CR"	Cars	"2 % CR"	"1 % CR"	"4 % CR"	"2 % CR"
	"2 % CP"	Computers	"3 % CP"	"1 % CP"	"2 % CP"	"2 % CP"
	"22 % DC"	Design/Creativity	"27 % DC"	"17 % DC"	"17 % DC"	"30 % DC"
	"0 % DR"	Drafting	"1 % DR"	"N % DR"	"2 % DR"	"N % DR"
	"0 % EG"	Engineering	"N % EG"	"1 % EG"	"N % EG"	"N % EG"
	"10 % EH"	Environment Help	"6 % EH"	"15 % EH"	"11 % EH"	"4 % EH"
	"3 % FM"	Family	"4 % FM"	"1 % FM"	"N % FM"	"4 % FM"
	"2 % GC"	Golf Course	"1 % GC"	"3 % GC"	"4 % GC"	"2 % GC"
	"0 % GR"	Green Roofs	"N % GR"	"1 % GR"	"N % GR"	"N % GR"
	"1 % HS"	History	"1 % HS"	"1 % HS"	"2 % HS"	"N % HS"
	"19 % IP"	Influence People	"20 % IP"	"19 % IP"	"11 % IP"	"15 % IP"
	"1 % LD"	Land Development	"1 % LD"	"1 % LD"	"N % LD"	"2 % LD"
	"4 % LA"	LA	"3 % LA"	"5 % LA"	"2 % LA"	"N % LA"
	"2 % LN"	Landscaping	"2 % LN"	"2 % LN"	"N % LN"	"7 % LN"
	"1 % LR"	Learning	"1 % LR"	"N % LR"	"N % LR"	"N % LR"
	"4 % LF"	Life	"4 % LF"	"5 % LF"	"2 % LF"	"11 % LF"
	"0 % MN"	Money	"N % MN"	"1 % MN"	"2 % MN"	"N % MN"
	"5 % MT"	Music/Theatre	"5 % MT"	"5 % MT"	"6 % MT"	"11 % MT"
	"4 % NR"	Natural Resources	"4 % NR"	"4 % NR"	"2 % NR"	"7 % NR"
	"16 % OD"	Outdoors	"15 % OD"	"19 % OD"	"6 % OD"	"17 % OD"
	"2 % PS"	Philosophy	"2 % PS"	"1 % PS"	"2 % PS"	"N % PS"
	"2 % PG"	Photography	"2 % PG"	"2 % PG"	"2 % PG"	"2 % PG"
	"7 % PT"	Plants	"6 % PT"	"9 % PT"	"2 % PT"	"4 % PT"
	"1 % ST"	Spirituality	"N % ST"	"3 % ST"	"2 % ST"	"2 % ST"
	"7 % SP"	Sports	"7 % SP"	"7 % SP"	"6 % SP"	"13 % SP"
	"2 % TV"	Travel	"2 % TV"	"1 % TV"	"4 % TV"	"N % TV"
	"2 % UP"	Urban Planning	"3 % UP"	"2 % UP"	"2 % UP"	"N % UP"
	"8 % OT"	Other	"10 % OT"	"7 % OT"	"2 % OT"	"9 % OT"
	1.967	(mean)	2.049	2.007	1.745	2.348
	1.31	(sd)	1.18	1.42	1.17	0.97
Open MOTIVATION	"12 % OI"	Outdoor Interest	"10 % OI"	"12 % OI"	"21 % OI"	"15 % OI"
	"3 % PI"	Planning Interest	"3 % PI"	"3 % PI"	"4 % PI"	"N % PI"
	"5 % PL"	Plant Interest	"4 % PL"	"6 % PL"	"6 % PL"	"9 % PL"
	"7 % AR"	Art Interest	"8 % AR"	"6 % AR"	"9 % AR"	"9 % AR"
	"3 % AI"	Architecture Interest	"4 % AI"	"3 % AI"	"2 % AI"	"4 % AI"
	"45 % DI"	Design Interest	"48 % DI"	"43 % DI"	"28 % DI"	"61 % DI"
	"5 % LI"	Landscaping Interest	"6 % LI"	"5 % LI"	"4 % LI"	"9 % LI"
	"1 % WI"	Water Interest	"2 % WI"	"1 % WI"	"2 % WI"	"N % WI"
	"29 % HI"	Human Interaction	"28 % HI"	"32 % HI"	"21 % HI"	"26 % HI"
	"25 % ER"	Environment Reasons	"22 % ER"	"31 % ER"	"26 % ER"	"24 % ER"
	"11 % FI"	Future Impact	"9 % FI"	"12 % FI"	"6 % FI"	"7 % FI"
	"3 % MT"	Mentoring	"4 % MT"	"2 % MT"	"2 % MT"	"2 % MT"
	"21 % IB"	Industry Breadth	"25 % IB"	"20 % IB"	"17 % IB"	"37 % IB"
	"6 % PS"	Passion	"4 % PS"	"9 % PS"	"4 % PS"	"11 % PS"
	"2 % GF"	Good Fit	"1 % GF"	"3 % GF"	"N % GF"	"N % GF"
	"9 % CG"	Challenge	"10 % CG"	"9 % CG"	"9 % CG"	"9 % CG"
	"5 % ID"	Interdisciplinary	"6 % ID"	"3 % ID"	"4 % ID"	"N % ID"
	"13 % OT"	Other	"14 % OT"	"13 % OT"	"6 % OT"	"22 % OT"
	2.057	(mean)	2.086	2.146	1.723	2.435
	1.46	(sd)	1.31	1.59	1.3	1.39

Statistic	Total (n = 331)	Description	Univ (n = 162)	LA (n = 151)	PSU (n = 47)	WSU (n = 46)
Open TRANSFER	"1 % AN"	Anthropology	"1 % AN"	"1 % AN"	"N % AN"	"N % AN"
	"1 % AE"	Arch. Engineering	"1 % AE"	"N % AE"	"N % AE"	"N % AE"
	"11 % AT"	Architecture	"17 % AT"	"5 % AT"	"6 % AT"	"4 % AT"
	"3 % AR"	Art	"4 % AR"	"3 % AR"	"N % AR"	"2 % AR"
	"0 % BI"	Biology	"1 % BI"	"N % BI"	"N % BI"	"N % BI"
	"3 % BS"	Business	"4 % BS"	"2 % BS"	"N % BS"	"2 % BS"
	"3 % CU"	Changed University	"2 % CU"	"5 % CU"	"2 % CU"	"N % CU"
	"0 % CH"	Chemistry	"1 % CH"	"N % CH"	"2 % CH"	"N % CH"
	"1 % CE"	Civil Engineering	"1 % CE"	"1 % CE"	"N % CE"	"N % CE"
	"1 % ES"	Environment Science	"1 % ES"	"1 % ES"	"N % ES"	"N % ES"
	"0 % FM"	Film	"1 % FM"	"N % FM"	"N % FM"	"N % FM"
	"1 % GD"	Graphic Design	"1 % GD"	"1 % GD"	"N % GD"	"N % GD"
	"1 % HT"	Horticulture	"1 % HT"	"N % HT"	"N % HT"	"N % HT"
	"0 % ID"	Interior Design	"1 % ID"	"N % ID"	"N % ID"	"N % ID"
	"1 % JN"	Journalism	"1 % JN"	"N % JN"	"N % JN"	"N % JN"
	"0 % KS"	Kinesiology	"1 % KS"	"N % KS"	"N % KS"	"N % KS"
	"1 % MF"	Medical Fields	"2 % MF"	"1 % MF"	"N % MF"	"4 % MF"
	"2 % JM"	No Jobs/Money	"2 % JM"	"2 % JM"	"N % JM"	"2 % JM"
	"3 % OE"	Other Engineering	"4 % OE"	"2 % OE"	"N % OE"	"2 % OE"
	"1 % PB"	Post Baccalaureate	"1 % PB"	"2 % PB"	"2 % PB"	"N % PB"
	"1 % PS"	Psychology	"1 % PS"	"1 % PS"	"N % PS"	"N % PS"
	"0 % SO"	Sociology	"N % SO"	"1 % SO"	"N % SO"	"N % SO"
	"2 % UD"	Undeclared	"3 % UD"	"1 % UD"	"4 % UD"	"N % UD"
	"2 % OT"	Other	"4 % OT"	"1 % OT"	"N % OT"	"2 % OT"
	0.393	(mean)	0.537	0.272	0.17	0.196
	0.67	(sd)	0.7	0.64	0.43	0.45
Open INFLUENCE	"2 % EP"	Employer	"1 % EP"	"3 % EP"	"N % EP"	"4 % EP"
	"4 % FM"	Family	"6 % FM"	"3 % FM"	"2 % FM"	"2 % FM"
	"2 % FR"	Friend	"2 % FR"	"3 % FR"	"2 % FR"	"2 % FR"
	"0 % LS"	LA Student	"1 % LS"	"N % LS"	"N % LS"	"N % LS"
	"3 % PL"	Professional LA	"N % PL"	"5 % PL"	"4 % PL"	"2 % PL"
	"2 % SM"	School Mentor	"2 % SM"	"3 % SM"	"4 % SM"	"N % SM"
	"2 % SF"	Self	"2 % SF"	"2 % SF"	"2 % SF"	"N % SF"
	"2 % OT"	Other	"1 % OT"	"3 % OT"	"N % OT"	"N % OT"
	0.178	(mean)	0.154	0.205	0.149	0.109
	0.54	(sd)	0.52	0.58	0.55	0.38
Open CHOICE	"20 % OI"	Outdoor Interest	"19 % OI"	"23 % OI"	"13 % OI"	"17 % OI"
	"2 % PI"	Planning Interest	"2 % PI"	"3 % PI"	"2 % PI"	"N % PI"
	"11 % PL"	Plant Interest	"8 % PL"	"15 % PL"	"4 % PL"	"20 % PL"
	"17 % AR"	Art Interest	"17 % AR"	"19 % AR"	"17 % AR"	"20 % AR"
	"15 % AI"	Architecture Interest	"17 % AI"	"14 % AI"	"21 % AI"	"9 % AI"
	"40 % DI"	Design Interest	"36 % DI"	"47 % DI"	"26 % DI"	"46 % DI"
	"17 % LI"	Landscaping Interest	"19 % LI"	"17 % LI"	"23 % LI"	"20 % LI"
	"20 % HI"	Human Interaction	"17 % HI"	"25 % HI"	"19 % HI"	"7 % HI"
	"11 % ER"	Environment Reasons	"9 % ER"	"12 % ER"	"9 % ER"	"7 % ER"
	"4 % FI"	Future Impact	"4 % FI"	"5 % FI"	"4 % FI"	"N % FI"
	"4 % MT"	Mentored	"4 % MT"	"3 % MT"	"4 % MT"	"11 % MT"
	"11 % IB"	Industry Breadth	"10 % IB"	"11 % IB"	"17 % IB"	"7 % IB"
	"8 % PS"	Passion	"7 % PS"	"9 % PS"	"13 % PS"	"9 % PS"
	"10 % GF"	Good Fit	"12 % GF"	"7 % GF"	"4 % GF"	"7 % GF"
	"2 % CG"	Challenge	"1 % CG"	"4 % CG"	"6 % CG"	"N % CG"
	"11 % ID"	Interdisciplinary	"10 % ID"	"13 % ID"	"17 % ID"	"4 % ID"
	"16 % OT"	Other	"16 % OT"	"17 % OT"	"21 % OT"	"26 % OT"
	2.178	(mean)	2.086	2.424	2.213	2.065
	1.24	(sd)	1.05	1.31	1.2	1.06

APPENDIX

E. MULTIPLE INTELLIGENCES GUIDE FOR TRAINING

Theory of Multiple Intelligences – Howard Gardner (1983)

"Intelligence refers to the human ability to solve problems or to make something that is valued in one or more cultures." Intelligence is a function of the brain and can be expressed through ability. An individual may possess many or all of the intelligences, but will continue to rely on one or two as their strengths.

Nature Smart (*Naturalist*) People Smart (*Interpersonal*) Number Smart (*Logical/Mathematical*) Picture Smart (*Spatial/Visual*)

Self Smart (*Intrapersonal*) Body Smart (*Bodily-Kinesthetic*) Music Smart (*Musical*) Word Smart (*Linguistic*)

(1) Linguistic Intelligence
"Linguistic intelligence is the capacity to use language, your native language, and perhaps other languages, to express what's on your mind and to understand other people. Poets really specialize in linguistic intelligence, but any kind of writer, orator, speaker, lawyer, or a person for whom language is important highlights linguistic intelligence."

(2) Musical Intelligence
"Musical intelligence is the capacity to think in music, to be able to hear patterns, recognize them, remember them, and perhaps manipulate them. People who have a strong musical intelligence don't just remember music easily—they can't get it out of their minds, it's so omnipresent."

(3) Logical-Mathematical Intelligence
"People with a highly developed logical-mathematical intelligence understand the underlying principles of some kind of a causal system, the way a scientist or a logician does; or can manipulate numbers, quantities, and operations, the way a mathematician does."

(4) Spatial Intelligence
"Spatial intelligence refers to the ability to represent the spatial world internally in your mind—the way a sailor or airplane pilot navigates the large spatial world, or the way a chess player or sculptor represents a more circumscribed spatial world. Spatial intelligence can be used in the arts or in the sciences. If you are spatially intelligent and oriented toward the arts, you are more likely to become a painter or a sculptor or an architect than, say, a musician or a writer."

(5) Bodily-Kinesthetic Intelligence
"Bodily kinesthetic intelligence is the capacity to use your whole body or parts of you body—your hand, your fingers, your arms—to solve a problem, make something, or put on some kind of a production. The most evident examples are people in athletics or the performing arts, particularly dance or acting."

(6) Interpersonal Intelligence
"Interpersonal intelligence is understanding other people. It's an ability we all need, but is at a premium if you are a teacher, clinician, salesperson, or politician. Anybody who deals with other people has to be skilled in the interpersonal sphere."

(7) Intrapersonal Intelligence
"Intrapersonal intelligence refers to having an understanding of yourself, of knowing who you are, what you can do, what you want to do, how you react to things, which things to avoid, and which things to gravitate toward. We are drawn to people who have a good understanding of themselves because those people tend not to screw up."

(8) Naturalist Intelligence
"Naturalist intelligence designates the human ability to discriminate among living things (plants, animals) as well as sensitivity to other features of the natural world (clouds, rock configurations). This ability continues to be central in such roles as botanist or chef. The kind of pattern recognition valued in certain of the sciences may also draw upon naturalist intelligence."

APPENDIX

F. TEN PSYCHOGRAPHIC VARIABLES DEFINED

Ten psychographic variables add insights into the problem.

The ten psychographic variables defined in this research substantially contribute to the understanding of why students choose a career path in LA. Most importantly, these variables give interested parties a foundation for having a consistent dialogue regarding the attributes of the LA students. However, the themes that can be extracted from these variables are more relevant and important to this research.

1. MI HS classes: Intrinsic Measure of SDT's authentic self

The first variable to consider, MI HS classes, is a classification of LA students based on what they reported as their three favorite high school classes. Why were these classes their favorite? Was it the content (valued ability/self-perceived competency)? Or was it the instructor (relatedness/autonomous support)? Regardless of the exact response, the types of responses align with intrinsic motivation and the integrated theoretical model. These classifications, therefore, provide an understanding of what intrinsically motivates an LA student based on past scholastic history. The four classifications (see *Figure 3.15* for details) represent normal distinct groups of LA students: Naturalists, Designers, Philosophers, and surprisingly, Musicians.

2. MI majors: Extrinsic considerations of SDT's introjected self

The second variable to consider, MI majors, is a classification of LA students based on what they reported as other considered majors. These majors represent what the LA students considered based on both internal and external influences. The four classifications

are similar to the first variable considered (see **Figure 3.17** for details): Naturalists,

Designers, Philosophers, and Musicians. Pair-wise correlations at the MI level (see **Figure 3.18**) also demonstrate a relationship to the first variable. However, at the classification level, there appears to be very little relationship between the two variables (see **Figure 3.19**). Why are the variables correlated at the MI level but not at the classification level? I posit that the other considered majors represent what LA students felt the world (external forces) expected of them, so their considered majors aligned with their MI, but that were not necessarily aligned with their intrinsic motivation. Such conflict represents the introjected self according to SDT.

3. <u>University FACTORS</u>: Innate needs of autonomy and relatedness

The third variable to consider, FACTORS, is a classification of LA students based on what they reported as being key factors for choosing their university (see **Figure 3.11** for details). The seven classifications are: Recruited, Setting, Financial, Location, Non-Location, LA Reputation, and Family & Friends. Although two of the classifications *partially* emphasize monetary rewards, these classifications represent a very small percentage (approximately 16%) of LA students. The classification process does not identify a group that is purely motivated extrinsically (money)[4]. The classifications do relate to innate needs of SDT: students want to have autonomy over their circumstances so choose a location/setting they feel will supports their autonomy; students also want to feel related to the location/setting as well as related to others: those who recruited them, members of the LA faculty, family and

---

[4] The Reputation classification could be argued as an extrinsic motivation. Although I cannot empirically test the argument, I would argue that in the LA context, the Reputation classification is motivated by relatedness: the reputation of the university because I want to relate to my parents, siblings who also attended; the department and faculty because I want to relate with them as I feel my interests align with their interests, etc.

friends. These motivational factors coupled with their anticipations represent key factors that led to the decision to choose their university.

4. <u>CAREER</u> anticipations: Realistic, Unrealistic, or Clueless?

The fourth variable to consider, CAREER, is a classification of LA students based on the type of work they anticipate during their career (see **_Figure 3.12_** for details). The six classifications are: Naturalist, Manager, Academic, Everyone Else, Residential Design/Build, and Land Developer. Although these anticipations may be naïve, they represent the perceptions of LA students prior to beginning a career in LA.

5. <u>AWARE</u>: introduction to LA based on autonomy or relatedness

The fifth variable to consider, AWARE, is a classification of LA students based on how they became aware (not to be confused with the group comparisons of when they became aware) of LA generally (see **_Figure 3.20_** for details). The three classifications are: Landscaper Influence, Friend Influence, and Everyone Else. The largest group can be identifiable as an autonomous group: personal search was the key motivator. These students sought out information from others. The other two groups represent relatedness in two different ways: the first from a relationship with someone active in the LA community and the second from someone considered a friend (with not mention of LA ties).

6. <u>GOALS</u>: long-term intrinsic anticipations

The sixth variable to consider, GOALS, is a classification of LA students based on long-term career goals (see **_Figure 3.24_** for details). The four classifications are: Help World, Own Company, Everyone Else, and Other. Although these anticipations may again be naïve, they represent the perceptions of LA students prior to beginning a career in LA. The largest

classification may consist of LA students who have yet to construct long-term anticipations. Those who want to own their company may be classified as extrinsically motivated, but I posit that the independence and autonomy of running things yourself is a more plausible, and intrinsically motivated explanation (see monetary discussion in FACTOR above). Altruistic goals of helping the environment and society align consistently with relatedness. Other goals suggest long-term anticipations may not relate with LA related issues.

7. <u>CHOICE</u>: relevance of Interests as self-perceived competencies

The seventh variable to consider, CHOICE, is a classification of LA students based on choosing to major in LA (see **Figure 3.21** for details). The nine classifications are: Passion, Interdisciplinary, Environmental, Everyone Else, Good Fit, Other, Outdoor Interest, Architecture Interest, and Outdoor Other. Having so many classifications may be difficult to keep track of, but the theory-anchored interpretation provides insights into this key decision in the funnel process. The largest group only represents about 20% of students, and the focus is on Passion. The key attributes of this classification suggest these individuals are appropriately being provided appropriate autonomous support: their natural abilities are motivating based on their planning interests, the support of mentors, and an intrinsic drive to make the world a better place. A careful analysis of the other clusters reveals similar findings: LA students want to feel competent about their interests and they want to relate to their world and others.

8. <u>MOTIVATION</u>: potential introjected group among LA students

The eighth variable to consider, MOTIVATION, is a classification of LA students based on general attractiveness and motivation of LA (see **Figure 3.22** for details). The nine

classifications are: Environmental Future, Planning/Plants, Art, Everyone Else, Environmental Industry, Water Interest, Interdisciplinary, Industry Breadth, and Other. This high volume of classifications may be difficult to keep track of, but the theory-anchored interpretation provides insights that overlap with previous variables introduced. Specifically, only a small group (less than 18%) speaks of extrinsic factors as their motivation. Taken holistically, there appears to be a group of about 15% of current LA students who have some levels of extrinsic motivation. My proposed theory warrants that this group should be further investigated to determine the degree of introjection such motivations represent. Do they represent LA students who feel stuck in the program because it is too late to defect?

9. <u>PASSION</u>: perceptions based on MI ability and innate needs of SDT

The ninth variable to consider, PASSION, is a classification of LA students based on their self-reported passion in life and its relationship to LA (see **Figure 3.23** for details). The nine classifications are: Golf/Photography, Environmental Help, Everyone Else, Music/Theatre, Outdoors, Design/Creativity, Art, Urban Planning, and Better World. This high volume of classifications may be difficult to keep track of, but it expands our understanding of current LA students, especially considering that Passion is a classification of CHOICE. Generally, 47% students reported that passion relates to their interest in LA and 5% reported that it did not[5] relate to LA. Although the largest classification, Everyone Else, represents non-responsiveness or lack of specific passion, the remaining data (60% of the sample) provides insights into LA students' passions. Again, all of these remaining

---

[5] The remainder of students (approximately 52% did not address this facet of the question in their open-ended response).

classifications are tied to MI perceptions of ability and innate needs of competency, relatedness, and autonomy.

10. <u>LOCATION</u>: varying comfort levels of LA students

The tenth and final variable to consider, LOCATION, is a classification of LA students based on the differences between their hometown and the university town (see *Figure 3.25* for details). The seven classifications are: More College Town, More Inner-City A, More Inner-City B, Higher-End, More Educated, Smaller, and Younger. This variable identifies types of geographic discrepancies which may or may not support the LA student in his/her studies at a university.