Patterns of undeclared students major declarations
by Diane Lageson Donnelly

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Education in Education
Montana State University
© Copyright by Diane Lageson Donnelly (2001)

Abstract:
The current state of where General Studies (undeclared) students at Montana State University (approximately one-third of the entering, freshmen class each fall semester) declared their initial, specified majors, and what their patterns of major declaration were after leaving General Studies was unknown. The purpose of this quantitative, descriptive study was to describe in which Colleges and curricula these students declared majors, and the semesters of declaration and credits completed at the time of declaration. Also, what students had stated as considered majors their first semester was reviewed for similarities to their declared majors, or to determine if students considering majors not available at MSU were more likely to remain undeclared or exit the University. Two sources of information were used in this study: students’ academic transcripts and their responses to a first-semester survey asking what majors they were considering.

A total of 248 students from the study population (N = 449) declared majors over the four semesters of the study. They declared majors in a variety of curricula in the University’s seven Colleges, but the Colleges of Education, Health and Human Development, Arts and Architecture, and Letters and Science received the majority of students. Over 90% of the students declared a major as continuing freshmen or sophomores (less than 46 credits), and an equal percentage persisted in their initial, specified major over the study period. The majority declared a major similar to one considered their first semester, and whether or not MSU offered a major they were considering did not have a large effect upon attrition or remaining undeclared. Finally, this population of undeclared students was retained at a level similar to the overall retention rate of MSU’s entering freshmen from that Fall.

The results suggest these students have diverse academic interests, as exhibited by their major declarations in curricula across the campus, and declaring a specified major is important to them since more than 90% did so while they were either freshmen or first semester sophomores. Even though undeclared, the majority do have an idea of what area of study they will pursue and they persist at rates similar to students who enter the University in declared majors.

The importance of understanding the major declarations and patterns of this large and diverse group of students is critical for effective resource planning and management of the University.
PATTERNS OF UNDECLARED STUDENTS' MAJOR DECLARATIONS

by

Diane Lageson Donnelly

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

MONTANA STATE UNIVERSITY
Bozeman, Montana

April, 2001
APPROVAL

of a thesis submitted by

Diane Lageson Donnelly

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

Dr. Kenneth Borland  
Approved for the Department of Education

Dr. Gloria Gregg  
Approved for the College of Graduate Studies

Dr. Bruce McLeod

Date
STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a master’s degree at Montana State University, I agree that the Library shall make it available to borrowers under rules of the Library.

If I have indicated my intention to copyright this thesis by including a copyright notice page, copying is allowable only for scholarly purposes, consistent with “fair use” as prescribed in the U.S. Copyright Law. Request for permission for extended quotation from or reproduction of this thesis in whole or in parts may be granted only by the copyright holder.

Signature  

Date   April 20, 2001
ACKNOWLEDGMENTS

While completion of this thesis is a personal accomplishment, it was achieved only with the knowledge, support and encouragement of many people. First, my thanks to the members of my committee. Dr. Kenneth Borland, Chairman, has provided the highest quality instruction and guidance throughout my graduate work. He suggested I pursue the thesis option and has worked with me diligently to make it a reality. His immediate response to every query, as well as his meticulous attention to detail was remarkable. His high standards have helped me attain a level above my original expectations. Dr. Richard Howard provided quality guidance from the pilot project to the finished thesis. His insightful comments and ability to clarify important points proved invaluable. Finally, my sincere appreciation goes to Dr. Vicki Orazem, who not only served on my committee, but also is my colleague in General Studies. Vicki’s questions, suggestions, and encouragement both challenged me and kept me on track, and were crucial to completion of this project.

I am also extremely grateful to the General Studies staff; I doubt one could work with a finer group of people. Mary Noll, Interim Director, has provided unfailing support and facilitated my success. Also, my thanks to Adam Feuerborn, my student assistant, who worked countless hours inputting data, and never uttered one complaint.

I also thank my children, Jennifer and John, who have been at my side always. Their unquestioning belief in me, encouragement and love serve as a cornerstone of my life.

And finally, my deepest heartfelt appreciation goes to Dr. Margaretha Wessel who believed in me long before I believed in myself. As Director of the General Studies Program for 25 years she guided and inspired countless students to realize their potential and reach for their dreams. I am fortunate to be one of those students. Her gifts to me are immeasurable and my thanks extend beyond what can be expressed in words.
# TABLE OF CONTENTS

1. INTRODUCTION TO THE STUDY................................................................. 1
   - Statement of the Problem............................................................................. 2
   - Purpose of the Study.................................................................................... 3
   - Statement of the Question.......................................................................... 4
   - Rationale...................................................................................................... 5
   - Introduction to the Study.......................................................................... 6
   - Background.................................................................................................. 6
   - Importance of the Study.......................................................................... 7
   - Definition of Terms................................................................................... 9
     - Major...................................................................................................... 9
     - Specified Major..................................................................................... 10
     - Undeclared versus Undecided Students.................................................. 10
     - Major Selection versus Major Declaration............................................ 11
     - Full-time, Part-time and Provisional Students........................................ 11
   - Assumptions, Limitations and Delimitations............................................. 12
   - Organization of the Study........................................................................ 14
   - Summary..................................................................................................... 14

2. REVIEW OF THE LITERATURE................................................................. 16
   - Introduction............................................................................................... 16
   - Synthesis of the Literature....................................................................... 16
     - Criteria for Selection of the Literature.................................................. 16
     - Context of the Problem......................................................................... 17
     - Current Understanding of the Problem................................................ 19
     - Undecided Students............................................................................... 21
     - Major Selection and Change of Major................................................... 23
     - Career Decision Making........................................................................ 26
     - Stated Majors versus Actual Majors....................................................... 28
     - Review of Methodologies....................................................................... 29
   - Evaluation of the Literature..................................................................... 29
   - Summary..................................................................................................... 29
   - Overall Weaknesses and Strengths............................................................ 30
   - Avenues for Further Inquiry....................................................................... 32
   - Chapter Summary..................................................................................... 32
3. METHODOLOGY

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>33</td>
</tr>
<tr>
<td>Participants</td>
<td>33</td>
</tr>
<tr>
<td>Population: Size and Demographics</td>
<td>33</td>
</tr>
<tr>
<td>Selection of Sample</td>
<td>35</td>
</tr>
<tr>
<td>Materials for Collection of Data</td>
<td>36</td>
</tr>
<tr>
<td>Overall Function</td>
<td>36</td>
</tr>
<tr>
<td>Academic Records</td>
<td>36</td>
</tr>
<tr>
<td>Purposes for Education Surveys</td>
<td>37</td>
</tr>
<tr>
<td>Validity and Reliability</td>
<td>37</td>
</tr>
<tr>
<td>Academic Transcripts</td>
<td>37</td>
</tr>
<tr>
<td>Purposes for Education Surveys</td>
<td>39</td>
</tr>
<tr>
<td>Development</td>
<td>41</td>
</tr>
<tr>
<td>Research Design</td>
<td>43</td>
</tr>
<tr>
<td>Rationale</td>
<td>43</td>
</tr>
<tr>
<td>Invalidity and Its Minimization</td>
<td>44</td>
</tr>
<tr>
<td>Procedure</td>
<td>45</td>
</tr>
<tr>
<td>Analysis Strategy</td>
<td>50</td>
</tr>
<tr>
<td>Time Line of the Study</td>
<td>54</td>
</tr>
<tr>
<td>Summary</td>
<td>54</td>
</tr>
</tbody>
</table>

4. RESULTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>56</td>
</tr>
<tr>
<td>Results of Data Analysis</td>
<td>57</td>
</tr>
<tr>
<td>Description of the Results in Relation to the Nine Questions of the Study</td>
<td>59</td>
</tr>
<tr>
<td>Question 1</td>
<td>59</td>
</tr>
<tr>
<td>Question 2</td>
<td>61</td>
</tr>
<tr>
<td>Question 3</td>
<td>62</td>
</tr>
<tr>
<td>Question 4</td>
<td>63</td>
</tr>
<tr>
<td>Question 5</td>
<td>64</td>
</tr>
<tr>
<td>Question 6</td>
<td>64</td>
</tr>
<tr>
<td>Question 7</td>
<td>65</td>
</tr>
<tr>
<td>Question 8</td>
<td>66</td>
</tr>
<tr>
<td>Question 9</td>
<td>66</td>
</tr>
<tr>
<td>Discussion of the Meaning</td>
<td>67</td>
</tr>
<tr>
<td>Patterns of Major Declaration by College</td>
<td>68</td>
</tr>
<tr>
<td>The College of Agriculture</td>
<td>68</td>
</tr>
<tr>
<td>The College of Arts and Architecture</td>
<td>69</td>
</tr>
<tr>
<td>The College of Business</td>
<td>71</td>
</tr>
<tr>
<td>The College of Education, Health and Human Development</td>
<td>71</td>
</tr>
<tr>
<td>The College of Engineering</td>
<td>73</td>
</tr>
</tbody>
</table>
5. CONCLUSIONS

Chapter Introduction
Summary of the Problem and Methodology and Results, Conclusions
Summary of the Problem
Summary of the Methodology
Summary of the Results of the Study
Interpretation of the Results
Discussion of the Broader Implications
Theoretical Implications
Practical Implications
Implications for the University
Implications for Colleges and Departments
Implications for General Studies
Limitations of the Study
Summary
Recommendations and Implementation of Findings
Recommendations for the University
Recommendations for Colleges and Departments
Recommendations for General Studies
Further Research
Procedural Adjustments
Replication
New Questions
Chapter Summary

BIBLIOGRAPHY
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Colleges of Major Declaration: Fall 1998-Spring 2000</td>
<td>59</td>
</tr>
<tr>
<td>2. Colleges and Majors Declared: Fall 1998-Spring 2000</td>
<td>60</td>
</tr>
<tr>
<td>3. Semester of Major Declaration by College: Fall 1998-Spring 2000</td>
<td>61</td>
</tr>
<tr>
<td>4. Credits Completed at Time of Declaration: Fall 1998-Spring 2000</td>
<td>63</td>
</tr>
<tr>
<td>5. Subsequent Major Declarations by College: Fall 1998-Spring 2000</td>
<td>64</td>
</tr>
<tr>
<td>6. Credits Completed by Students Remaining in General Studies (Undeclared) Spring 2000 Semester</td>
<td>65</td>
</tr>
<tr>
<td>7. Colleges of Major Declarations: Fall 1998 Study Population (General Studies) vs. Fall 1998 Entering Declared Freshmen (MSU)</td>
<td>69</td>
</tr>
<tr>
<td>8. Total Yield of Majors for ED-HHD from Fall 1998 General Studies Study Population</td>
<td>72</td>
</tr>
<tr>
<td>9. Total Yield of Majors for Nursing from Fall 1998 General Studies Study Population</td>
<td>75</td>
</tr>
<tr>
<td>Figure</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
</tr>
</tbody>
</table>
The current state of where General Studies (undeclared) students at Montana State University (approximately one-third of the entering, freshmen class each fall semester) declared their initial, specified majors, and what their patterns of major declaration were after leaving General Studies was unknown. The purpose of this quantitative, descriptive study was to describe in which Colleges and curricula these students declared majors, and the semesters of declaration and credits completed at the time of declaration. Also, what students had stated as considered majors their first semester was reviewed for similarities to their declared majors, or to determine if students considering majors not available at MSU were more likely to remain undeclared or exit the University. Two sources of information were used in this study: students' academic transcripts and their responses to a first-semester survey asking what majors they were considering.

A total of 248 students from the study population (N = 449) declared majors over the four semesters of the study. They declared majors in a variety of curricula in the University's seven Colleges, but the Colleges of Education, Health and Human Development, Arts and Architecture, and Letters and Science received the majority of students. Over 90% of the students declared a major as continuing freshmen or sophomores (less than 46 credits), and an equal percentage persisted in their initial, specified major over the study period. The majority declared a major similar to one considered their first semester, and whether or not MSU offered a major they were considering did not have a large effect upon attrition or remaining undeclared. Finally, this population of undeclared students was retained at a level similar to the overall retention rate of MSU's entering freshmen from that Fall.

The results suggest these students have diverse academic interests, as exhibited by their major declarations in curricula across the campus, and declaring a specified major is important to them since more than 90% did so while they were either freshmen or first semester sophomores. Even though undeclared, the majority do have an idea of what area of study they will pursue and they persist at rates similar to students who enter the University in declared majors.

The importance of understanding the major declarations and patterns of this large and diverse group of students is critical for effective resource planning and management of the University.
INTRODUCTION TO THE STUDY

The selection of a major is one of the most crucial decisions college students make. Starting at a young age children are asked, “What do you want to be when you grow up?” And probably one of the most common questions college students are asked is: “What is your major?” Throughout their comprehensive analysis of the research, How College Affects Students, Pascarella and Terenzini substantiate the premise that the field of study selected by students has a considerable effect on how they experience college, as well as their future occupational course (1991). The literature, as well as common sense, confirm the fact that deciding upon the “right” major is a priority for college students, and causes them considerable anxiety (Bogenschutz, 1994; Boyer, 1987; Gordon, 1995; Gordon & Habley, 2000; Levine, 1978; Orazem, 2000; Rysiew, Shore & Leeb, 1999). As the renowned psychologist Erik H. Erikson stated, “In general it is the inability to settle on an occupational identity which most disturbs young people” (1968). For traditional-aged freshmen, this is probably one of the most substantive decisions they face. During the selection of a major, and subsequent reflection upon the appropriateness of that decision, students may encounter their first experience with the connections between their educational, career and life goals (Laff, 1994).

At Montana State University (MSU), approximately one-third of all entering freshmen enroll in General Studies which provides academic advising for all undeclared students. The students in this population cover the range of “undecidedness”—from having
no idea whatsoever about what to major in, to having a general idea but needing more information, to having a clear direction, while wanting to explore and more definitively refine that idea (General Studies New Student Guide, 1999-2000). Regardless, all students in General Studies share one common goal—all are moving toward declaring an initial, specified major. As stated above, the importance of this decision is profound, but no complete, analyzed data set existed regarding the major declarations of MSU’s General Studies students. Therefore, a study was needed to learn more about the major declaration patterns of this large and diverse population.

In this chapter the overall problem and purpose of this study will be introduced. The local context of the problem will be presented, as well as how this problem relates to the literature on undeclared students and major declaration. Additionally, the significance of the problem will be presented in relation to MSU and the larger context of higher education. Finally, specific definitions, assumptions and limitations of the study will be discussed.

**Statement of the Problem**

The current state of where General Studies (undeclared) students at MSU declare their initial, specified majors, and what their patterns of major declaration are after leaving General Studies is unknown by the University. While nearly one-third of the fall semester, entering freshmen classes from 1995-2000 (average N = 623 or 32%) entered as General Studies, undeclared students, MSU has no specific knowledge of the Colleges and curricula in which these students declare their initial, specified majors. In addition, it is unknown in
which semester they declare, how many credits they have completed at the time of declaration, and how many students subsequently change that initial, specified major. For students who leave MSU, it is not known if they are more likely to leave before or after declaring a major. Also unknown are the similarities between majors being considered by undeclared students their first semester and the majors they declare, and if students are more likely to remain in General Studies (undeclared) or exit the University if they are considering majors not available at MSU. All of the above information could be beneficial to MSU for retention and resource management.

The problem is, MSU needs to know the current state of undeclared students’ initial, specified major declarations and what their chronological patterns of major declaration are after leaving General Studies.

**Purpose of the Study**

The purpose of this quantitative, descriptive study is to describe the current state of undeclared, MSU students’ initial, specified major declarations and what their chronological patterns of major declaration are after leaving General Studies. The description is in terms of which Colleges and curricula the General Studies students declared as their initial, specified majors, as well as the semesters of declaration and number of credits completed at the time of declaration.

In addition, using data from a survey administered at the beginning and again at the end of their first semester at MSU, what these students stated as considered majors during their first semester were reviewed to determine if there were similarities between their
stated and declared majors. Also, their responses were examined to see if students who had stated majors not available at MSU were more likely to remain in General Studies or exit the University.

Statement of the Question

The overall question of the study is: What is the current state of undeclared MSU students' declaration of majors? The specific questions asked in this study are:

► In which MSU Colleges and curricula do General Studies students declare their initial, specified majors?
► When (in which semester) do they declare?
► How many credits have they completed at the time of declaration?
► Of the students remaining in General Studies after the final semester of the study, how many credits have they completed?
► How many students subsequently change their initial, specified major?
► Are students more likely to leave the University before declaring a major?
► Are the majors declared by the students similar to what they stated as majors they were considering during their first semester at MSU?
► Were students who stated majors not available at MSU more likely to remain in General Studies (undeclared) or exit the University?
Rationale

The initial question the researcher wanted to answer when first contemplating this study was: “In which Colleges and majors do the General Studies students at MSU declare their initial, specified majors?” After working in General Studies as an academic advisor for three years it was apparent this information was unknown, or at least known only subjectively—a formal study had never been done. Considering the number of incoming freshmen enrolling in General Studies each year (approximately one-third of the entering freshmen class), it seemed information worth knowing for University planning, retention, and general understanding. Therefore, the researcher decided to pursue a pilot study of the major declarations and patterns of students enrolled in General Studies (GENS) 101: Freshman Seminar, Fall 1996. Information from that study was presented at an end-of-class forum to members of the Department of Education, General Studies and University administration. Since then, requests have come from across campus for more information on General Studies students’ major declarations. This continued interest confirmed the author’s initial premise regarding the need for a better understanding of the major declarations of MSU’s undeclared students and has helped to define the parameters of this study.
Introduction to the Study

Background

The institution which served as the setting for this study is Montana State University-Bozeman (MSU)—a public, Land Grant institution with an average fall enrollment of 11,633 students academic years (AY) 1995-2000. MSU is organized into seven Colleges:

- The College of Agriculture
- The College of Arts and Architecture
- The College of Business
- The College of Education, Health and Human Development
- The College of Engineering
- The College of Letters and Science
- The College of Nursing

The Colleges are further broken down into departments, which offer baccalaureate degrees in 50 different undergraduate majors, with additional options (MSU 1998-2000 Bulletin). General Studies is classified as a “Special Academic Program,” organizationally positioned directly under the Office of the Provost, and led by a Director who has Assistant Dean authority. The program serves all students at MSU who have not declared a major. Over the past six years, nearly one-third of all freshmen entering MSU chose to be undeclared majors and were enrolled in General Studies. Of all freshmen entering MSU each fall from 1995-2000 (average N = 1,987), 31.6% or an average of 623 each fall entered as General Studies students. According to University regulations, students may remain in General Studies until they have completed 60 credits. The total number of students (entering freshmen, continuing freshmen and sophomores) enrolled in General Studies each fall since 1995 has been approximately 1,300.
The program serves two main purposes for undeclared students: (1) Academic advising—all 1,300 students enrolled in General Studies receive individualized advising from the General Studies staff; (2) The Freshman Seminar—an academic, core-curriculum course, emphasizing verbal and written communication and critical thinking, which focuses on students' successful transition into the University. The seminar is the largest freshmen seminar on campus and provided the sample population for this study.

Importance of the Study

Since the 1920's, undecided students have been a population of interest in the field of higher education (Gordon, 1994; Lewallen, 1994). Theories of student development propose that being “undecided” about one’s major or career path is a normal developmental stage (Chickering & Reisser, 1993; Erikson, 1968; Evans, Forney & Guido-DiBrito, 1998; Perry 1970, 1998) and researchers confirm that a large number of college students are indeed unsure. The Higher Education Research Institute at the University of California, Los Angeles has collected data showing that nationally, during the five-year period from Fall 1995 to Fall 1999, 7.7% of all freshmen entering higher education formally stated they were undecided about even their probable major field of study (Astin, Parrott, Korn & Sax, 1997; Sax, Astin, Korn & Mahoney, 1998, 1999).

The most evident group of undecided students are the entering freshmen of traditional age, who, for any number of reasons, enter college without declaring a specific major (Gordon, 1995). Titley and Titley (1980) relate that 75% of college freshmen demonstrated “...some form of undecidedness, tentativeness, or uncertainty about choice of
major.” Foote (1980) postulated the percentage of freshmen who were undecided might be as high as 90%. And while the first year of college has received a great deal of attention in the literature, few studies follow undecided students beyond the freshman year (Anderson, Creamer & Cross, 1989).

Change of major is also a common experience among the majority of college students and a phenomenon that is acknowledged in the world of higher education. According to Gordon, “At any given time, a majority of college students are in some state of doubt or indecision about their educational and career goals” (1995, p. 80). Researchers confirm that large numbers of students change majors during their college careers (Feldman & Newcomb, 1969; Foote, 1980; Kramer, et al., 1994). Pascarella and Terenzini summarize this phenomenon with the following understatement: “...it is clear that students frequently change their occupational plans during college” (1991, p. 424).

The fact many students in college experience varying states of undecidedness has profound implications for their institutions. Many hypotheses which suggest that students who are unsure about an academic major are more likely to withdraw from college, have been supported (Pascarella & Terenzini, 1991; Tinto, 1993, 1996). Retention is a critical issue on campuses; therefore, a more complete understanding of the reasons for withdrawal, as well as ways to prevent it, is of utmost importance (Hossler, Schmit & Vesper, 1999). Declining enrollments limit resources and require wise management of those limited resources (Gaff & Ratcliff, 1994). In light of this situation, an understanding of student behavior and needs is valuable for planning and resource allocation on any campus. Additionally, if administrators, faculty, advisors and student services personnel
have a better understanding of the patterns of students' major declarations and career aspirations, they will be better prepared to help these students successfully navigate their early college years, thus benefitting both the students and the institution (Gordon, 1994, 1998).

Definition of Terms

In this section the researcher defines how certain terms are used in this study in order to provide a common understanding for all readers. In addition, the rationales for stated definitions are discussed.

Major. MSU offers degrees in 50 different majors, with additional options, and the selection of those majors by General Studies students is the focus of this study. “Major” is defined in the Policy and Procedures Manual of the Montana Board of Regents as follows:

“The specific field of concentration for the degree. A designated and coherent sequence of courses in a discipline, related disciplines, or professional area in which a student concentrates as a part of a baccalaureate degree program. The requirements of the major are usually defined by one academic department” (Montana Board of Regents Policy 303.1, 2000).

On a historical note, the initial reference to the term “major” was in the Johns Hopkins catalogue of 1877-78 (Levine, 1978, p. 29). The Oxford English Dictionary (1989) defines this use of the word as such: “In some universities, a subject to which special attention is given during a certain period of study.” Over the past century, in the United States, the academic major has become the primary focus of faculty and students alike—it brings together those who share an interest in a “...constellation of related
questions, issues, and approaches” (Gaff & Ratcliff, 1996, p. 240). A study of the
catalogs of 270 institutions of higher education by the Carnegie Council showed that only
three of those institutions had an undergraduate curriculum without disciplinary majors

**Specified Major.** The adjective “specified” was chosen by the researcher as it
connotes the process of thoughtful selection of something; in this case, a student’s
deliberate selection of a major field of study, leading to a baccalaureate degree. The term
“specified major” was also used by Kramer, et al. (1994) to identify the majors declared by
students in their extensive study of major changes of Brigham Young University (BYU)

**Undeclared versus Undecided Students.** In this study, “undeclared” students are
those who are enrolled in the University without declaring a specified major; at MSU these
students are enrolled in General Studies. Students may *decide* to be undeclared for a
number of reasons: (a) They may be uncertain about a major field of study or uncertain
about a career path, or both; (b) they may have an idea about a career of interest but are
unsure which major is the appropriate one for their career aspirations; (c) they may want to
explore different areas of study or explore what the University has to offer; (d) they may
be attending MSU to satisfy basic requirements and plan to transfer to another institution
to pursue a specialized degree; or (e) they may be uncertain about why they are even at a
university, let alone have a sense of a specialized area of study (Gordon, 1994, 1995; MSU
Regardless of the reason, all students in this category have made the decision to be “undeclared”—they are students pursuing a degree, but initially uncommitted to a specified major. Some examples of terms applied to undeclared students at other institutions are “open-major,” “pre-major,” or “exploratory” (Gordon, 1995, p. x; Kramer, et al, 1994). In this study, the term applied to this group is “undeclared.”

The term “undecided” has different connotations. Gordon defines undecided students as “...students unwilling, unable, or unready to make educational and/or vocational decisions” (1995, p. x). Many of these undecided students may actually be “declared” students—they may be enrolled in a particular major, but they fit one of Gordon’s descriptors. Extensive research has been done on the population known as undecided students and that research will be examined in light of this study. Throughout this paper, the term “undecided” will refer to students who are educationally and/or vocationally unsure, whether or not they have declared a specified major.

**Major Selection versus Major Declaration.** Major selection refers to the process of consideration of different majors with the purpose of finding a major to formally pursue as an area of study. Major declaration refers to the action of filing paperwork with the University which indicates a student’s desire to formally pursue a particular area of study. At MSU, students file a “Change of Curriculum” card with the Registrar’s Office to formally declare a major.

**Full-time, Part-time and Provisional Students.** Students enrolled in 12 or more credits per semester at MSU are considered full-time; students enrolled in less than 12
credits per semester are considered part-time. Students who do not meet admission standards may be admitted on a provisional status for one semester. They are limited to seven credits and must receive a 2.0 grade point average (GPA) their first semester to continue at the University (Montana Board of Regents Policy 301.7, 1999).

Assumptions, Limitations and Delimitations

The researcher carried out the study with the following assumptions: (a) The students in the study population covered the range of decidedness about a major (Gordon, 1995, Chapter 1); (b) the students had varying levels of knowledge about the majors available to them at MSU, as well as the relationships between various majors and occupations; (c) the students responded with sincerity to the survey question on majors they were considering.

As with any research project, it is impossible to include the actual population of all individuals relevant to the study; therefore, the researcher had to form a set of criteria for selection of the target population. The decision was made to target a fall semester population of students; in this case, the entering, freshmen General Studies students Fall 1998 semester: N = 625 (MSU Quick Facts 1998-1999). From that group the sample was condensed to look at only those students enrolled in the GENS101 Freshman Seminar course that semester: N = 543. There were several reasons for this decision.

First, the population of students could be easily defined because they were all listed on the class rosters for the course. Secondly, they all shared the common characteristics that were required for enrollment in the course--entering freshmen students, traditional age
(17-21 years old), with 12 or fewer completed credits. The third criterion for establishing the sample population was participation in the “Purposes for Education” surveys given in the GENS101 class at the beginning and end of the Fall 1998 semester, which provided data on majors being considered. When these three criteria were applied to the target population, a total of 449 students were included in the study population.

Another consideration was that not all students enrolled in the Fall 1998 semester would be retained through the Spring 2000 semester. MSU’s fall-to-fall retention rates for entering freshmen have averaged 70% over a four-semester time period since the mid-1990’s; therefore, the researcher knew the sample population was likely to decline by approximately 30% and effect the data on declaration of majors (MSU Quick Facts).

For this study, the researcher decided to focus on the declaration of majors at the College level. Much of the data reported by the University, including entering freshmen declarations, are recorded at the College level, so this focus was consistent with MSU’s practice. In addition, to provide more detail for this study, the specific majors and options declared by students were also collected and are presented. By the time the declarations were broken down into specific departments, and again into majors and options, the numbers were quite small and conveyed little meaning. Therefore, the researcher focused on patterns of declaration at the College and departmental level, but some striking cases at the major/option level are discussed as well. In spite of the factors described above, which reduced the study population, the size was still large enough to provide meaningful data for this study and furnish a foundation for future research.
**Organization of the Study**

The report consists of five chapters. Chapter 1 serves as the introduction to the study, while Chapter 2 is a review of the literature on undecided students, major declaration and change, career decision making and student development, and the predictive value of stated majors. Chapter 3 details the methodologies used, as well as provides a chronological report of the study. Chapter 4 presents the results of the study, while Chapter 5 offers a summary of the findings and discusses implications and applications of the study, as well as areas for further research.

**Summary**

Undecided students in higher education, of which undeclared students are just a component, comprise a large percentage of the undergraduate population and their "undecidedness" can profoundly effect their institutions. From 1995 to 2000 almost one-third of the students who entered MSU entered as General Studies students; in other words, they purposely decided to enter as undeclared students. The size of this clearly identified population of undecided students demonstrates the need for an understanding of their choice of majors and patterns of declaration. It is worthwhile to understand in which Colleges and majors these students declare their initial, specified majors, their semester of declaration, the number of credits completed at the semester of declaration, if they declare a subsequent major(s), or if they exit the University before or after declaring a specified major. In addition, the similarities between majors being considered by undeclared students their first semester and the majors they declare warrants investigation, as well as
if students are more likely to remain in General Studies (undeclared) or exit the University if they are considering majors not available at MSU. All of the above information could be beneficial to MSU, for retention and resource management, as well as a greater understanding of undeclared students as they progress through college.
CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

This chapter is a review of the pertinent literature on the topics of undecided students, major selection and change, career decision making and its relation to student development, and stated majors/careers as valid predictors.

Synthesis of the Literature

Criteria for Selection of the Literature

The initial search of the literature for this study focused on undecided students, freshmen students, and major selection by college students. While an extensive amount of information was found on freshmen, and a fair amount on undecided students, there was less information on major selection. The relative lack of information on major selection caused the researcher to widen the search to include research on change of major and career decision making. When the topic of major change was reviewed, it became apparent that was a more common focus of study in the literature, and often, information regarding the initial major selection was found embedded in the research on major change. While much research on career decision making is related to the general population, a great deal of this research is accomplished on college campuses with college students; therefore, considerable information was applicable to this study. The literature on student development was also reviewed, focusing on major/career decision
making. In addition, some information was obtained on the relationship between entering students' major and career ideas and their actual major at graduation. While much of the research in these areas is dated, considerable inquiry continued throughout the 1990's, confirming or questioning previous work and adding to the knowledge base in these areas of study.

Context of the Problem

The selection of a major is at the heart of each student's college experience and the departmental major is ingrained in the structure of higher education in America. The term "major" was first used in The Johns Hopkins University catalog published in 1877-1878. That university had just been established in 1876, based on the German research model, and was the first American research university (Levine, 1978, p. 506). In 1909, Harvard, under the leadership of President A. Lawrence Lowell, established a system of "concentration and distribution" designed to provide more "unity and coherence" to their degrees (Dressel, 1963, p. 6; Levine, 1978). Students and faculty alike were in favor of more specialized areas of study--students were interested in preparing for future vocations and associated financial benefits, while professors preferred teaching courses in their specific areas of interest. As the research mission of higher education grew, departmental organizations were developed and individual departments attracted students who were dedicated to that field of study and faculty interests. Hence, the concept of the major spread throughout higher education and today is firmly established in the world of academia (Carnegie Foundation, 1977; Levine, 1978).
The major is comprised of a number of courses in a specific area or closely related field and provides the depth component of an undergraduate degree. It is designed to provide students with "...a body of knowledge, methods of study and practice appropriate to a subject or subject area" (Levine, 1978, p. 28). Pragmatically, education in a specific field provides students with preparation required to enter many occupations or for continuing study at the graduate level.

The major may also serve as a source of community, bringing together faculty and students who have a common interest in related problems, issues and areas of inquiry. This departmental community often provides an identity and serves as a student’s campus "home base." In addition to academic engagement, it may provide a social and support network, which has been shown to have a positive effect on student outcomes (Carnegie Foundation, 1977; Dressel, 1963; Gaff & Ratcliff, 1994; Hossler & Bean, 1990; Pascarella & Terenzini, 1991; Tinto, 1993, 1996).

Understandably, the selection of a specific major is quite important to students. Entering freshmen listed scheduling of courses and selection of a major as their top two concerns at orientation (Sagaria, Higginson & White, 1980). Gaff and Ratcliff make the following comment, which attests to the importance students attach to the major.

When students are asked, "What are you studying?" they typically respond with their choice of major (or apologetically say they don’t know, if they haven’t decided on one), implying that all of the rest of their studies in the arts and sciences and elsewhere are insignificant (1996, p. 231).

A resounding 96.5% of undergraduates surveyed by the Carnegie Council found that "getting a detailed grasp of a special field" was seen as essential or fairly important
Researchers have also demonstrated that selection of an appropriate, congruent major is an important variable in student satisfaction, success and retention (Foote, 1980; Gordon, 1984; Noel, Levitz & Saluri, 1985; Orazem, 2000; Schurr & Ruble, 1988; Tinto, 1993; Walsh & Lewis, 1972; Walsh & Russel, 1969).

But, as presented in the introduction to this study, the decision of what to major in does not come easily for most students, and at some point in a student’s college career, most experience some level of doubt or indecision about their college and vocational goals (Gordon, 1995). This indecision is expressed in the numbers of students who are enrolled in programs for undeclared students as well as the numbers of students who change majors. The reasons for major and career indecision are numerous and include lack of information, outside influences, the natural developmental process of young adults, and more serious problems of general indecisiveness (Gordon, 1994, Chap. 13; McDonald & Steele, 2000). These undecided students have a profound effect on higher education—a great deal of time, energy and resources are expended on recognizing, understanding and facilitating the success of these students (Lewallen, 1994).

**Current Understanding of the Problem**

Undecided students have been the focus of discussion and formal research since the 1920’s (Gordon, 1995, p. 1). Researchers have looked at various aspects of the problem. Who are these students? Are undecided students “different” from decided students? Why are they undecided? Are undecided students more likely to leave school? How do faculty and staff facilitate the transition from undecided to decided? Perhaps the
over-riding theme gleaned from these studies is that undecided students comprise a large and diverse group that are typical college students. In fact, Lewallan proposes that "Undecided students represent more a microcosm of the college population than a highly distinguishable group" (1995, p. 12).

Researchers have demonstrated that finding the "right" major is of great importance to students, changing majors is a common phenomenon on college campuses, and there are many reasons for major change. Some researchers provide evidence that students who enter college undeclared and then declare a specific major after a period of time seem less likely to change majors in the future (Kramer, et al., 1994; Tinto & Tinto, 1985). Also, in the literature, major selection is closely connected to career decision making and career development; students often see the selection of a major and selection of a career as one in the same (Gordon, 1984, p. 5).

Numerous career development theories have been examined in the literature in relation to major selection. Examples of these are Holland’s (1973, 1992) personality and career congruency theory, Super’s (1957, 1990) exploration stage of his life-span theory, and Perry’s (1968, 1982, 1999) developmental stages.

Several researchers have shown a positive relationship between what students think they would like as a major and/or career (expressed choice) and what they actually choose, providing evidence that possible stated majors have predictive value (Davis, 1965; Holland & Gottfredson, 1975; Kramer, et al, 1994; Slaney, 1980).
Undecided Students

Who are “undecided” students? There have been numerous studies on this population, but the definition of who that population is differs from study to study. Virginia Gordon, probably the leading figure in this area of research, defines them quite simply as “students who are unsure of their academic and occupational goals” (1994, p. 1). This general definition includes students who enter college in an “undeclared major” category, those who change from a declared major to undeclared status, and those who have declared majors but in reality are unsure. The most obvious group of undecided students is the traditional-aged freshmen who enter college “...unable, unready or unwilling to commit themselves to a specific academic direction” (Gordon, 1995, p. 59). The study population of this paper comes from this group of undecided students.

The population of students who enter college stating they are “undecided” has been growing in number throughout the past four decades. Information compiled for The American Freshman: Thirty Year Trends, 1966-1996 (Astin, et al., 1997) reports that nationally, for all institutions, the number of entering freshmen who state they are undecided about a major has risen from 1.9% in 1966 to 8.2% in 1996. Figures from the 1997-2000 ACT High School Profile Reports show a steady increase in respondents listing “undecided” or not responding at all to the query on their “planned educational major:” 1997 = 15.7%, 1998 = 16.7%, 1999 = 17.3% and 2000 = 18.5% (American College Testing, 2000).

But these figures may not project a picture of reality. As James Lancaster, then Director of the Center for Undeclared Majors at the University of South Carolina stated:
"The truth is that the vast majority of freshmen don't know what they'll major in when they enter college, despite what they indicate on admissions forms and despite the posture they assume at orientation" (p. 109, 1985). Titley and Titley (1985) studied a group of Colorado State University students over a period of six years and their findings support Lancaster's statement. Only one in eleven students (9%) who entered Colorado State University in 1977 and attended a summer orientation actually applied in a specific major, maintained that major during preliminary advising, felt certain about it and ended up graduating in that major.

While indecision about a major and career is common for freshmen, it is not limited to that group. Evidence from the literature substantiates that the majority of all students enrolled in college are truly undecided at some point and most will change their major at least once (Anderson, et al., 1989; Baird, 1969; Foote, 1980; Gordon, 1995; Kramer, et al., 1994; Titley & Titley 1976, 1980). Steele (1994, p. 92) points out that in many colleges and universities, major-changers represent a bigger group of students than those who enter as undecided freshmen. The study by Kramer, et al. (1994) presented data showing that 38% of the juniors and 25% of the seniors made major changes. A 1995 study by Long, Sowa and Niles looked at undecided senior students--students who were nearing graduation in a major, but were not sure about their career path. Twenty-eight percent of the seniors in this study were self-reported as undecided about a career choice. These studies verify that major decisions and their related career implications exist throughout the college student population.
The reality of the tenuous state of major decision among college students has been studied in relation to retention issues. Some studies present data showing undecided students are more likely to be unsuccessful in college or drop-out, (Chase & Keene, 1981; Foote, 1980; Maier & Herman, 1974; Pascarella & Terenzini, 1991; Tinto, 1993), while other studies dispute this claim (Anderson, et al., 1989; Astin, 1993; Bean, 1990; Gordon, 1994, 1995). Orazem, in her qualitative study (2000), which describes why students stay and why they leave, looked at factors influencing undeclared students’ selections of majors and persistence to graduation. She found undecided students do need greater assistance than those who arrive with a clear educational path, and that persistence is much more complex than simply choosing a major (p. 107). A review of the literature on giftedness and multipotentiality indicates this population of students is likely undecided about their specific course of study because they have so many abilities, interests and options (Rysiew, et al., 1999). Regardless, researchers have demonstrated students who make academic and social connections to their college or university are retained at higher rates and persist to graduation (Astin, 1984, 1999; Hossler & Bean, 1990; Orazem, 2000; Pascarella & Terenzini, 1991; Tinto, 1993, 1996, 1998). An understanding of undecided students is critical for retention and enrollment management and the goal of student and institutional success.

Major Selection and Change of Major

An abundance of research has been done on major change--much of this research overlaps with and is applicable to the current study on initial major declaration.
Therefore, literature regarding the common practice among students of changing majors was considered. Various studies have resulted in data showing that large numbers of students change majors either once or more during their undergraduate college career. The studies listed below, which span more than thirty years, show how prevalent the practice has been, and continues to be. The percentage listed refers to the number of students in each study who changed majors at least once during their college career.

<table>
<thead>
<tr>
<th>Year</th>
<th>Researchers</th>
<th>% Changing majors 1+ times</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>Davis</td>
<td>50%</td>
</tr>
<tr>
<td>1969</td>
<td>Feldman &amp; Newcomb</td>
<td>33-66%</td>
</tr>
<tr>
<td>1978</td>
<td>Levine</td>
<td>43%</td>
</tr>
<tr>
<td>1980</td>
<td>Foote</td>
<td>87%</td>
</tr>
<tr>
<td>1984</td>
<td>Gordon</td>
<td>75%</td>
</tr>
<tr>
<td>1985</td>
<td>Noel, Levitz &amp; Saluri</td>
<td>75%</td>
</tr>
<tr>
<td>1987</td>
<td>Simpson</td>
<td>65%</td>
</tr>
<tr>
<td>1994</td>
<td>Kramer, Higley &amp; Olsen</td>
<td>75%</td>
</tr>
</tbody>
</table>

McDonald and Steele (2000) summarize research on the causes of major change and identify four general reasons:

1. Lack of information. Not having complete or accurate information may be the most common reason according to research (Kramer, et al. 1994; Pierson, 1962).

Students coming from high school may have been exposed to a limited variety of careers and may be bewildered by the variety of subject areas available for study. These individuals may have decided upon a major based on incomplete or incorrect information.
or just to select something without understanding the requirements for that field of study or the process for deciding on a major.

2. Outside influence. Family and friends often encourage students to follow certain paths and for many reasons, students take their advice. Also, after a period of exposure, they may find they are not suited to that field of study or just do not like it; therefore, they change to a major that is a better match for them (Gordon & Polson, 1985; Grites, 1981).

3. Developmental issues. Extensive work by researchers shows that young adults progress through different developmental stages, at different rates. All students may not be ready to become involved in their major and career decision making process in their first year of college; instead, their focus may be on other developmental tasks and their engagement in this process is delayed (Chickering & Reisser, 1993; Erickson, 1980; Evans, et al., 1998; Perry, 1968, 1981).

4. Academic difficulty. Students sometimes find the course work in a certain major too difficult and they are unable to be successful in that course of study. As a result, they are unable to progress and must find another major (Gordon & Polson, 1985).

Some information was discovered in the literature on subsequent major change among students who were initially undecided and then declared a specific major. Research accomplished by Kramer, et al. (1994) at BYU from 1980-1988, which tracked changes in academic major among undergraduate students, directly compared the major changes of “open major” (undeclared) students and “specified major” (declared) students. Open major students in this study changed their majors 25% less often than
specified major students. Over 70% of Colorado State University students who began as general studies (undeclared) students and graduated, received their degrees in the field of their first, specified choice (Titley & Titley, 1985).

Career Decision Making

The process of major selection is intertwined with the process of career decision making—the two “go hand in hand.” As Davis (1965) states: “The undergraduate college is the entry point into the top layers of our occupational structure” (p. I). Although this comment was printed over thirty years ago, it may contain even more truth in today’s society. It is impossible to look at the major selections of college students without looking at their career decision making process.

Many studies demonstrate that vocational reasons (getting a better job and making more money) are primary in the minds of students (Altbach, 1993; Astin, et al., 1997; Levine & Cureton, 1998; Pascarella & Terenzini, 1991; Peterson, 1983; Zunker, 1994.) Gordon states that “Most students look upon choosing a major and an occupation as a single problem” (1984, p. 5). And, a definite question students have is how will specific majors connect to the real world of work (Bogenschutz, 1994)?

In relation to undecided students, Lewallan (1994) discusses the “two-dimensional nature of being undecided” (p. 7). Students may be undecided about the specific area to study (major), their eventual career choice upon graduation, or undecided about both.

The ideas of many career development theorists have been applied to the realm of major and career decision making. Holland’s “Theory of Types” assigns people and
work environments to specific categories—an individual’s career choice and career adjustment are extensions of their personality (1973, 1992). When applied to the field of major selection, this theory proposes that:

When a student’s characteristics resemble those of the typical student in his prospective field, he is likely to feel at home and remain in the field. Conversely, incongruencies between a student and his field result in feelings of alienation and dissatisfaction and usually lead to a change of plans (Abe & Holland, 1965).

A substantial amount of investigation has been done on this idea of the congruency of personality and major and/or career, and supports this theory (Noel, et al., 1985; Schurr & Ruble, 1988; Tinto, 1993; Walsh & Lewis, 1972; Walsh & Russel, 1969).

Another career development theory commonly related to major and career selection of college students is Super’s life-span theory (1957, 1990). Super proposes different developmental tasks at different times in life—in late adolescence and early adulthood individuals are involved in “exploration.” They are involved in obtaining occupational information, choosing career alternatives, making a specific decision and starting to work. The consistencies between the tasks of the exploration stage and the selection of a college major and potential career are obvious.

William Perry’s theory of “Intellectual and Ethical Development” (1968, 1981, 1999) has been applied to the entire realm of higher education, and can be used to help understand the process of students’ major and career decision making. For example, students in the “dualistic” (black and white) stage may believe there is one career that is just right for them, while students in the “multiplistic” stages are more willing to investigate potential careers and gather information (Evans, et al. 1998).
Overall, there is a vast amount of literature covering student development and applications to major selection, major change and career decision making. Borgen (1991) and Hackett, Lent and Greenhaus (1991) each wrote comprehensive summaries of 20 years of vocational behavior counseling and vocational theory and research, respectively. Also, the September-October 1999 issue of the Journal of College Student Development reprinted several landmarks articles pertaining to this field; in particular the articles by Parker (1974) and Strange (1994) provide much pertinent information on this area of study.

A comprehensive review of the literature on “career decidedness types” was published by Virginia Gordon in 1998. Her twenty years of research in this field documented that the level of major and career indecision among students varies widely. Based on this body of work, Gordon proposes seven categories of decision status among students--three categories of decided and four categories of undecided types, ranging from “very decided” to “tentatively undecided” to “chronically indecisive.” Undoubtedly, all these types of undecided students are represented in the population of the current study.

Stated Majors versus Actual Majors

The final area investigated in the literature was the relationship between majors stated by freshmen or pre-freshmen and their actual majors of declaration or graduation. Several studies show a positive relationship between what students think they would like as a major and/or career (expressed choice) and what they actually choose.
The study by Kramer, et al. (1994) provided this finding: “On the average, 47% of the graduates in all of the cohorts selected the major they ultimately graduated with at the time they applied to the university” (p. 90). But, the bulk of those students changed their major one or more times during their college years and then came back to their original choice. Previously, Davis (1965), Holland and Gottfredson (1975), and Slaney (1980) showed that expressed choices have predictive value.

Review of Methodologies

In reviewing the literature on major declaration, some similar descriptive, quantitative studies were found. The study by Kramer, et al. at BYU in 1994, which tracked students’ declarations of majors from their freshman year to graduation, was the most similar to the researcher’s study. The purpose of the BYU study was to “...describe changes students make in their majors between college entry and graduation, and the impact of students’ high school decisions on their college major” (p. 89). Additional studies which tracked major declaration and change patterns of students were accomplished by Davis (1965), Foote (1980), Simpson (1987), Titley and Titley (1980, 1985), Titley, Titley and Wolff (1976).

Evaluation of the Literature

Summary

The researcher’s review of the literature for this study—undecided students, major selection and change, career decision making and related student development
information, and stated majors/careers as valid predictors—provided a comprehensive picture of how complicated and inter-connected the selection of a major is for all college students. While there are over-riding patterns verified in the literature (undecided students are not much different from decided students and a majority of students change their majors), and categories that groups of students fit into (very-decided to chronically indecisive [Gordon, 1998] and dualistic vs. multiplistic [Perry, 1981]) the process of selecting a major and pursuing it to graduation is an individual and variable process. In addition, the significance of this decision cannot be denied—the selection of a major is at the foundation of each student's college experience and is rooted in the system of higher education in America.

Overall Weaknesses and Strengths

No studies were found in the literature which looked specifically at entering, undeclared students and described their patterns of declaration over a period of time. The study by Kramer, et al. (1994) was the most similar. It looked at all entering and transfer students' major declarations from entry to graduation, and the number of major changes of undeclared (open-major) students in the population was compared to the number of major changes of specified major students (p. 91).

Research on undecided students is extensive, extending from the 1920's to the present. These students are studied and discussed in light of many factors, but descriptions of their patterns of major declaration over their college career are not common.
Undeclared students, undecided students who admit they are undecided, are not always studied separate from the varied group of all “undecided” students. Researchers who have focused specifically on undeclared students are: Foote (1980), who examined the differences between students without a “determined major” (undeclared) and students with a determined major; Titley and Titley (1980, 1985), who tracked students who entered undeclared through graduation, and Kramer, et al. (1994) who looked at the entering, “open-major” students separately from students who entered declared, and then changed majors. Gordon also focused on undeclared students separately from the larger category of undecided students in her book on advising undecided students (1995, Chapter 3).

Major change is a common theme in the literature with studies on the prevalence of the phenomenon, reasons for it and practices to facilitate students engaged in the process, but again, descriptions of the patterns of major declarations by these students were not common. Extensive literature exists on student development theory as applied to career decision making and provides a solid background for exploring why students are undecided, why they may find deciding upon a major difficult, and how they go about making their decisions. Research accomplished by several individuals has shown that stated majors do have predictive value for both declared majors and majors of graduation. However, much of this research was accomplished prior to the 1990's.

Overall, the literature provides an abundance of information on who the students are who are undecided and change majors, as well as information on why they are undecided, change majors and why selection of an appropriate major is important to
them. But, descriptions of what majors undecided students select, when they select them, and their persistence in those majors have not been extensively developed.

Avenues for Further Inquiry

Little is known about what happens to undecided students once they decide upon a course of study. What are the patterns of declaration among this population? Are undecided students more likely to enter certain curricula than others? Why do they select the majors they do? What is their rate of subsequent major change? What is their persistence rate to graduation? What types of intervention or support from their institution made a difference? These are just some of the questions that provide opportunities for further study.

Chapter Summary

In this chapter the researcher provided a review of the literature base for the study. A synthesis of the literature on undecided students, major selection and change, career decision making and related issues of student development, and stated majors/careers as valid predictors was provided. Next, the criteria for selection of that literature was discussed. The context of the problem and current understanding of it was presented, as well as methodologies used in similar studies. Next the literature reviewed was evaluated, looking at the weaknesses and strengths, and finally, the avenues for further study. In Chapter 3 the researcher provides a detailed description of the methodologies used in this study.
CHAPTER 3
METHODOLOGY

Introduction

This chapter describes, in detail, the rationale and methodologies employed to describe the current state of where General Studies (undeclared) students at MSU declare their initial, specified majors, and what their patterns of major declaration are after leaving General Studies.

The target population of students for this study is described, and the rationale for the selection of the actual population of the study is explained. Detail is provided concerning how data was compiled from academic transcripts to describe patterns of declaration from Fall 1998 through Spring 2000 semesters. In addition, an explanation of information regarding possible majors obtained from a survey given to these students at the beginning, and again at the end, of their first semester is provided. A chronological explanation of the compilation and analysis of the data is included. Finally, the nine guiding questions are stated and a detailed explanation is provided of how the data was compiled and analyzed for each of these questions.

Participants

Population: Size and Demographics

General Studies, a special academic program under the Office of the Provost, is designed to serve undeclared students at MSU. General Studies has received
approximately one-third of all freshmen entering the University each year since 1995; for the Fall 1998 semester, 31% (625 of the 2,041 entering freshman) enrolled in General Studies. All first-time, entering, traditionally-aged (17-21 years old), freshmen who are enrolled in General Studies are required to take the General Studies Freshman Seminar Course (GENS101). "First-time," entering freshmen are defined by MSU as "those who have completed high school or its equivalent and have never attended a college or university, or who have attempted fewer than 12 quarter or semester college-level credits at another regionally accredited college or university" (1998-2000 MSU Bulletin, p. 10). Included in that group are full-time students (those enrolled for 12 or more credits), part-time students (those enrolled for less than 12 credits), and "provisional admits"—students who have not met the minimum academic requirements for admission, but are permitted to enroll for one semester, with a limit of seven credits (Montana Board of Regents Policy, 1999). The initial population for this study consisted of all students enrolled in the Fall 1998 GENS101 course—a total of 543 students were officially enrolled in the course September 22, 1998, the end of the add-drop period.

Specific data was not collected on this group regarding full-time and part-time status, gender or in-state and out-of-state status. The basic demographic information on full- and part-time status, gender and in- and out-of-state status is presented below for the entire MSU entering, freshman class for Fall 1998 (MSU Quick Facts 1998-1999). While the population of the GENS101 students may not be identical, the information is included as a point of reference for the reader.
The entering, freshman class was comprised of 93% full-time students (N = 1,900) and 7% part-time (N = 141); 55% male (N = 1,199) and 45% female (N = 919); and 69% in-state (N = 1,407) vs. 31% (N = 634) out-of-state students or those from foreign countries.

Selection of Sample

All students enrolled in GENS101 Fall 1998 semester as described above were initially considered part of the sample (N = 543). This number was obtained from the official class rosters of all 30 GENS101 sections, which list students who were officially enrolled at the end of the add-drop period (September 22, 1998). Students who did not receive a grade for the course (i.e.: withdrew from the class after the September 22nd drop deadline) were deleted from the sample; a total of 16 students withdrew during the semester and were deleted, leaving 527 in the population at that point.

Also, in collecting data from students’ transcripts, it was discovered there were three students who enrolled in and completed the course, but had more than 12 college credits prior to the Fall 1998 semester. Those students were also deleted from the sample, leaving 524 in the population.

A final criterion for selection in the sample was based on participation in an in-class survey on students’ “Purposes for Education” (Borland, Orazem & Donnelly, 1998). All students enrolled in the GENS101 course were asked to respond to a survey at the beginning of the semester (referred to as the “pre-survey”) and again at the end (“post-survey”) which queried students on their purposes for higher education, two majors they
were considering, and the impact of elements of the GENS101 course. Students who met
the criteria noted above and participated in both surveys were included in this sample.

Based on the above criteria, a final total of 449 students were included in this study.

Materials for Collection of Data

Overall Function

The current state of where General Studies students at MSU declare their initial,
specified majors and what their chronological patterns of major declaration are after leaving
General Studies are unknown. Therefore, the purpose of this descriptive study is to describe
the current state of undeclared, MSU students’ initial, specified major declarations and what
their chronological patterns of major declaration are after leaving General Studies. The
Colleges and curricula at MSU in which students in General Studies declare their initial,
specified majors is reported, as well as a description of their patterns of major declaration.
In addition, what these students had stated as possible majors during their first semester
were examined to determine if there were similarities between their stated and declared
majors, and to see if students who had stated possible majors not available at MSU were
more likely to remain in General Studies or exit the University. Two sources of
information were used.

Academic Records. The Fall 1998-Spring 2000 MSU academic transcripts
provided the following information: (a) enrolled Spring 2000 semester or last semester of
attendance; (b) the College and major declaration of the initial, specified major, and the
semester of that declaration; (c) credits completed at the time of major declaration, exit from MSU, or if remaining in General Studies Spring 2000; (d) subsequent major declarations, including semester of and number of credits completed at that time.

**Purposes for Education Surveys.** The surveys given to the GENS101 students at the beginning, and again at the end of the Fall 1998 semester (Borland, et al., 1998) provided the second source of information for this study. Students’ responses to the query: “Two majors I am now considering are...” were collected and recorded.

**Validity & Reliability**

The following issues of validity and reliability were considered by the researcher when gathering, recording and analyzing the data from the two sources.

**Academic transcripts.** These are the official University records of each student’s semester-by-semester academic history while enrolled at MSU and are therefore, considered a valid and reliable record. Information from the following transcript categories was used in the current study. Each category is described, along with issues the researcher considered in relation to that information. Appendix A is a sample academic transcript for Fall 1998-2000.

**College:** The information on this line of the transcript lists the College in which students have officially declared a major in: one of MSU’s seven Colleges or General Studies. This information is obtained by the Registrar’s Office either from the initial application or a “Change of Curriculum” card filed with the Registrar’s Office at some point during the semester.
**Major:** The information on this line is the specified major declared either on students' initial applications or on a “Change of Curriculum” card filed with the Registrar's Office at some point during the semester. All students listed under the “College” line as Department of General Studies have their “Major” listed as General Studies.

**Earned Hours (Credits):** This block shows the total number of hours, referred to in this study as credits, that a student has “earned” during the current semester and the cumulative number of credits earned at the University. The *MSU 1998-2000 Bulletin* defines an “earned credit” as: “The total number of credits for which passing grades (A through D, and P) have been received in courses numbered 100 or above” (p. 37). “For courses repeated, only the credits received the last time the course was taken will be included in the credits counted for graduation” (p.38).

For this study, the number of credits earned (completed) was compiled for each of the following categories: (a) the semester of declaration, (b) the semester of exit from MSU, and (c) for students who were enrolled in General Studies during the Spring 2000 semester. When noting the number of credits a student had completed, the researcher decided to record the number of credits earned cumulatively at the end of the semester just prior to the semester a specific College major declaration was noted. The reasoning for this is as follows: If a student turned in a “Change of Curriculum” card any time during the Spring 1999 semester declaring a specified major (leaving General Studies), the new College and major were displayed under the Spring 1999 Semester section of the transcript. The cumulative record of credits earned by that student at the end of the
Spring 1999 semester were not posted, obviously, until that semester was over. Therefore, to obtain a true picture of how many credits the student had completed at the time they declared their new major, the researcher had to refer back to the cumulative credits earned (completed) at the end of the previous semester; for instance, the end of the Fall 1998 semester for a student whose Spring 1999 transcript lists a College major other than General Studies.

**Purposes for Education Surveys.** The “Purposes for Education” surveys used in this study were developed by a team (of which the researcher was a member) from the Department of Education and General Studies at Montana State University during the Spring 1998 semester, with funding from the MSU Teaching and Learning Committee. The longitudinal study was designed to address the following question: “How can the evolution of a student’s personal philosophy of higher education be assessed within the Freshman Seminar and throughout their time at MSU-Bozeman” (Borland, 1998)? Specifically, the instrument looked at the students’ purposes for education, events during the semester that may have impacted their purpose, possible majors under consideration, and effectiveness of various components of the Freshman Seminar Course (GENS101).

A pilot survey was prepared and given to students enrolled in GENS101 Spring 1998 (N = 50) as part of the development of the formal instruments intended for use in the Fall 1998 semester. This pilot included a request for two majors the GENS101 students were considering. Based on the findings from the Spring 1998 trial, the team of researchers submitted the pilot survey instrument to typical research instrument design processes; it was checked against the literature, revised, and externally critiqued.
Changes deemed necessary were made to the survey and "pre-seminar" and "post-seminar" versions were prepared for administration to the Fall 1998 students in a paper and pencil format. The team also discussed when and how to administer the instruments in order to receive the most representative participation and data, as well as the applicable use of qualitative and statistical analysis (Borland, 1998).

The decision was made to have the pre-seminar survey given in-class during the first week of school, while the post-seminar survey would be given in-class during the final week of the semester. Representatives from the MSU Department of Education administered the survey in each of the GENS101 classes. Each representative had attended a training session explaining the purposes for the survey, as well as consistent procedures for administering it to the students. Each representative was provided with an instruction script to read from to insure continuity among the 30 sections. The following introduction was read in each class:

The following questionnaire is not part of your course. It is part of a large MSU Department of Education faculty research project. It will not impact your grade in any manner; however, your participation is encouraged. The individual results will be kept confidential.

The following statement, also read to the students, applied to the question on majors under consideration: "Now, fill in the two blanks which are provided so you may identify two majors (areas of study other than General Studies) you are now considering. This in no way obligates you to any major." Appendix B provides "Purposes for Education" survey documents.
The responses to the request on majors being considered was recorded in the Excel database exactly as written on the surveys. A description of the criteria used for determining whether or not majors listed on the survey were similar to majors declared and/or available at MSU is discussed in the “Analysis Strategy” section of this paper and applies to guiding questions seven through nine of this study.

Development

A pilot study on patterns of major declaration of General Studies students was conducted by the researcher for an MSU “Applied Educational Research” course (EDCI 506) project during the Fall 1998 semester. The pilot project used all students enrolled in GEN S101 Fall 1996 semester (N = 374). Their academic records were reviewed and information was recorded on the following criteria:

1. Subject numbers (Assigned in order names appeared on rosters)
2. Gender
3. College, major and semester of initial declaration
4. College, major and semester of subsequent declaration(s)
5. Remain in General Studies (if pertinent)
6. Semester of exit (if pertinent)
7. Credits completed by students who exit or remain in General Studies

Information resulting from the pilot study helped define the purposes of the current study, as well as identify what specific student information would and would not be useful for the current study. The information on gender collected for the pilot study was not deemed pertinent to the current study and was not collected.

During the literature review for the pilot, one similar study was found that tracked the major declarations of students from college entrance to graduation. The study by
Kramer, et al. (1994) of BYU collected data from all students who graduated from that institution between 1980 and 1988, including students who entered BYU as freshmen, as well as those who entered as transfer students. The purpose of their study was to “describe changes students make in their majors between college entry and graduation, and the impact of students’ high school decisions on their college major” (p. 89). The BYU study sought answers to nine different questions; of those nine, three questions helped define the current study:

1. What is the relationship between an early statement of a preference for a major (either on the American College Test [ACT] or at the time of application to college, and the major at graduation?
2. How many times do students change their major throughout their undergraduate career?
3. When in the student’s career do most major changes occur (p. 89)?

These questions helped determine the information collected from the academic transcripts and the “Purposes for Education” surveys. The criteria the BYU study used to define “matches” between students’ stated possible majors and actual declared majors, was also used by the researcher. A complete discussion of the criteria used for a “match” between possible and declared majors is included an upcoming section of this chapter.

While the requests for information on possible majors on the “Purposes for Education” surveys were not initiated to gather material for the current study, it was determined by the researcher and her committee that the surveys contained an abundance of information that could provide a broader picture of the study population and their decisions regarding major declaration; therefore, the responses to the query on possible majors were incorporated into this study.
As stated earlier, a pilot survey was given to the fifty students enrolled in GENS101 Spring 1998. Based on that trial, some modifications were made to the survey, to insure an effective tool for use in the 30 sections of GENS101 Fall 1998. The surveys were administered to all consenting students in the course (see Appendix B for sample permission form) at the beginning and again at the end of the Fall 1998 semester. For additional information on this survey, the reader is referred to the Borland, 1998 and Borland, et al., 1998.

Research Design

Rationale

The question the researcher wanted to answer when first considering this study was: “In what College and major do the General Studies students at Montana State University declare their initial, specified major?” After working in General Studies as an academic advisor for three years it became apparent this information was unknown, or at least known only subjectively—a formal study had never been done. Considering the number of incoming freshmen enrolling in General Studies each year (approximately one-third of all entering freshmen since 1995), it seemed information worth knowing. Therefore, the researcher pursued the pilot study of the 1996 GENS101 entering freshmen cohort and then, using the parameters of that study, proceeded to investigate the patterns of major declarations of the Fall 1998 GENS101 students.
Invalidity and Its Minimization

The following steps were taken to insure the validity of the study and minimize any threats to the trustworthiness of the study. In regards to the selection of the population, all students enrolled in the GENS101 course Fall 1998 heard an explanation of the course at their summer orientation and registration session. Students were told all traditional-age (17-21 years old), entering freshmen in General Studies were required to take the GENS101 course. Also, each student visited with at least one General Studies academic advisor who reviewed the criteria for course enrollment and answered any questions students had about the course. If the General Studies advisors determined a student did not fit the criteria for the GENS101 course, an alternate course was recommended. In addition, when the academic transcripts of the entire study population were reviewed a second time by the researcher, transcripts were screened for any indications the students had not met the criteria for selection in the study population.

The academic transcripts, which were used as the source for declared Colleges and majors, credits completed, and semester of declaration or exit, are the University’s official academic record. There is no other source that could supersede the academic transcripts. Each student’s transcript was reviewed at least twice; once by the student assistant who input the original information and one or more times by the researcher, to verify that all information had been collected and recorded correctly.

Steps were also taken to insure the information gathered from the “Purposes for Education” surveys on majors under consideration was obtained and recorded exactly as stated. All students who participated received the exact same pre- and post-surveys. All
students received the survey in-class in the first week of the semester and the final week of the semester, although not all students took the survey on the same calendar day due to the schedules of the individual sections. Also, the research team provided training and a script of instructions to all representatives who administered the survey in the classes to provide identical verbal instructions to all students. Since several individuals administered the survey, the administration of it undoubtedly varied somewhat, but every step was taken to provide consistency.

Procedure

Early in the conceptual phase of this study, the Director of General Studies and the Coordinator of the General Studies Freshman Seminar were contacted regarding this project. The project was discussed with them and the researcher received permission to use the Fall 1998 GENS101 students as the target population for the study. In addition, both individuals expressed their interest in the project and were kept informed on the progress of the study and the information gathered. “The Human Subjects Committee at Montana State University” was also contacted regarding this study. The researcher proposed to the committee that the research being accomplished for this study did not require the committee’s approval, in accordance with the Code of Federal Regulations, 45CFR46.101 section b. The chairman of the committee agreed. A copy of his email response and the applicable Code of Federal Regulations is included in Appendix C.

During the Fall 1998 semester students in the GENS101 Freshman Seminar course participated in the “Purposes for Education” pre- and post-surveys (described above). The pre-survey was administered in-class in all thirty GENS101 sections during
the first week of the semester; the post-survey was administered in-class in all sections during the final week of the semester. Students were not required to participate; those who did signed a statement of understanding giving the survey team members permission to use their responses for research purposes. All results from these surveys were entered into an Excel spreadsheet program by an individual in the University research office. As previously explained in the criteria for selection of the sample, only those students who participated in both the pre- and post-surveys were included in the population for the current study. The survey responses of those students to the query: "Two possible majors you are currently considering...." were retrieved from the "Purposes for Education" data base and included in the data compiled for this study. Not all students participating in both surveys provided the same number of responses to the query "Two majors I am now considering are...." On each of the two surveys students were provided with two blocks to write in majors they were considering. Therefore, each student had the possibility of listing a total of four possible majors between the two surveys, but the number of responses per student varied from zero to four, inclusive of both surveys.

The initial step in the project's data collection began with creation of an Excel spreadsheet file listing the identification (ID) numbers and names of all students who participated in both the pre- and post-surveys on "Purposes for Education" during the Fall 1998 GENS101 course. Only the researcher and student assistant (who acknowledged his responsibility regarding the privacy of the study population) accessed the information and connected ID numbers and names with the data. No results of this study incorporate any information which could link individual students to any results.
Using this list, each student's academic transcript was accessed through the University academic records system (Banner) and the following information, if applicable, was collected on each individual:

1. Declared College
2. Declared Major
3. Semester Declared
4. Last Semester of Attendance

The bulk of the data was collected from students' academic records over the course of the final month of the Spring 2000 semester by the undergraduate student assistant and entered into the Excel file. The freshmen's possible major responses from the "Purposes for Education" pre-survey were also added into the Excel file at this time.

After the completion of the Spring 2000 semester, the researcher reviewed all data that had been collected and input on the population, to "tie-up any loose ends," ie: investigate ID numbers that had been listed incorrectly, clarify specific majors, etc.

During this review, it became apparent many students' "Change of Curriculum" requests filed late in the semester had been held and not processed upon receipt by the Registrar's Office. It was learned that end-of-the-semester tasks such as graduation checks and final grade posting had been given priority. Once the staff's end-of-the-semester workload lessened, the "Change of Curriculum" cards were processed and the transcripts of those students correctly indicated the change was made during the Spring 2000 semester.

Therefore, students who were still listed in General Studies in April 2000 when the first transcript review was done could have registered a change of major for that semester which would have been missed. Therefore, the academic transcripts of all students listed
as General Studies for Spring 2000 were re-checked in June. It was found that many of these students’ major declarations had been missed in the first transcript review and their corrected information was added to the spreadsheets.

Initially, the researcher had not considered it necessary to collect information on credits completed at the time of major declaration, exit from MSU, or if remaining in General Studies Spring 2000, as the original focus of the study was to analyze the students’ records on a semester by semester basis only. This focus was discussed by the researcher and her committee after the data had been collected and reviewed; it was unanimously decided the most important factor to consider at the time of major declaration, exit, etc. was the number of credits completed by the student, not the semester of the occurrence.

As mentioned previously, General Studies students are allowed to remain in the program until 60 credits are completed. While this number of credits would be completed at the end of four semesters for students successfully completing 15 credits per semester, that pattern was not consistent among the sample population (nor is it likely consistent among the MSU student population in general). The researcher and committee agreed that compiling data on completed credits could provide more substantive and useful information on the students’ patterns of declaration; therefore, the researcher reviewed the records of each student in the study population, noting the number of credits completed at any of the following occurrences:

1. Initial, specified major declaration
2. Subsequent major declaration(s)
3. Exit from MSU or still enrolled in General Studies Spring 2000.
For reasons explained in the previous section, the researcher recorded the number of credits completed the semester prior to the semester of declaration to provide a realistic picture of completed credits at the time of declaration. The information on completed credits was added to the Excel data file for each student.

During this complete review of all transcripts of the study population, the researcher discovered some individuals included in the sample population did not meet the requirements for inclusion; in particular, students who had completed more than 12 credits of course work prior to the Fall 1998 semester, but who had registered for and completed the GENS101 course. These students were deleted from the sample population at this time. While it was time consuming to again review the transcripts of approximately 450 students, it was a most useful exercise. It provided the researcher with the opportunity to carefully examine the academic progression of each student and to get a sense of the patterns of declaration within this population, as well as to detect mistakes in the collection and recording of the data. The researcher would highly recommend this type of detailed review be completed before a final analysis of data.

As stated previously, only the students’ responses on possible majors from the pre-survey on “Purposes for Education” were entered into the Excel data file. After a discussion with the committee chairman, the researcher decided to include the possible major responses from both the pre- and post-surveys; therefore, the post-survey responses were added to the Excel file at this time.
The final data file consisted of the following categories of information:

1. Student ID#*
2. Last name*
3. First name*
4. Declared College
5. Declared major
6. Semester declared
7. Credits (at time of declaration)
8. Pre-survey 1st major
9. Pre-survey 2nd major
10. Post-survey 1st major
11. Post-survey 2nd major
12. Last semester of attendance
13. Credits at exit
14. Subsequent major
15. Notes

*While the above information was listed on the Excel form in order to keep a consistent record of correct data, no identification information was included or considered in the data analysis and results in any way.

**Analysis Strategy**

The data collected from this study was primarily analyzed using frequency counts to answer the questions the researcher posed for this study. The analysis of the data is discussed in relation to the specific guiding question(s) being addressed.

The overall question of this study was: What is the current state of undeclared MSU students’ declaration of majors? The following guiding questions break that query down in order to investigate the different facets of the students’ chronological patterns of declaration and to determine if there were similarities between their stated and declared majors, or to see if students who had stated possible majors not available at MSU were more likely to remain in General Studies or exit the University.
Question 1: In which Colleges and curricula at MSU do General Studies students declare their initial, specified majors? To answer this question, the information gathered on the Colleges and specified majors declared by students was sorted in the Excel file first by “Declared College” and second by “Declared major.” This data was compiled using frequency counts and recorded for the appropriate Colleges and majors within those Colleges. Results are listed in Chapter 4, Tables 1 and 2.

Question 2: When (in which semester) do General Studies students declare their initial, specified majors? In response to this question, the data was again sorted by “Declared College” then “Declared major” and the number of students who declared each semester was tallied and is presented in Chapter 4, Table 3.

Question 3: How many credits have General Studies students completed at the time of their initial, specified major declaration? Again, the data was sorted by “Declared College” and “Declared major,” and the number of completed credits was recorded and grouped into units of 15 credits each, ie: 0-15, 16-30, 31-45, 46+. This mirrors the University’s standard unit of 15 credits per semester with sophomore status awarded at 30 completed credits, junior status at 60 completed credits, etc. (MSU 1998-2000 Bulletin, p. 29). This information was tabulated and is presented in Chapter 4, Table 4.

Question 4: How many General Studies students subsequently change their initial, specified major? This information was obtained by from the Excel file when sorted by “Declared College,” “Declared major,” and “Subsequent major.” In addition to this information, the researcher had listed in the “Notes” column the semester of the
subsequent declaration, as well as the credits completed at that point. Information is presented in Chapter 4, Table 5.

**Question 5:** Are General Studies students more likely to leave the University before declaring a major than after they have declared a specific major? This information was acquired by sorting the data by “Last semester of attendance,” “Declared College,” and finally, “Declared major.” The information was tallied and the number of students who leave before declaring an initial specified major was reported. The data was re-sorted two additional times replacing the third criteria “Declared major” with “Credits at exit” and then with “Last semester of attendance.” The information pertaining to students who exit is discussed in Chapter 4.

**Question 6:** How many credits have students completed who are still enrolled in General Studies Spring Semester 2000? This information was gathered by sorting the data in the Excel file first by “Declared College” and “Declared major,” and only the General Studies students’ records were reviewed. The number of credits completed at the end of the Fall 1999 semester were tallied for these students, again using the 15-credit groupings to mirror the University’s standard unit of 15 credits per semester with sophomore status awarded at 30 completed credits, junior status at 60 completed credits, etc. This data is presented in Chapter 4, Table 6.

Questions seven through nine incorporate data from both the academic transcripts and the responses to “Majors I am now considering” on the pre- and post-surveys. They examine if there are similarities between students’ stated and declared majors, or if
students who stated majors not available at MSU were more likely to remain in General Studies (undeclared) or exit the University.

**Question 7:** For each student, are any of the majors stated on the pre- and post-surveys as “majors I am now considering” similar to the declared major(s)?

**Question 8:** Are students whose survey responses listed majors under consideration that are not available at MSU more likely to remain in General Studies (undeclared) Spring Semester 2000 than students who listed majors that are available at MSU?

**Question 9:** Are students who exit the University more likely to have stated a major under consideration that is not available at MSU than to have stated a major that is available at MSU?

To answer the three questions listed above, the Excel file data was first sorted by “Declared College” and “Declared major” second. The researcher then compared the declared information with the responses to the majors being considered using the following process. For students with a declared major the researcher compared the declared major with every major being considered stated by that student on both surveys to determine similarity. While this was a subjective call in some cases, the majority of determinations as to whether or not the declared and considered majors were similar were obvious. In cases when it was not obvious, the researcher referred to the **MSU 1998-2000 Bulletin** for specific descriptions of the majors offered by the University and the required course work for those majors to determine if declared majors could be considered similar to what students stated as considered majors. Additionally, Gaff and Ratcliff's **Handbook**
of the Undergraduate Curriculum (1996), “Part Three: Academic Disciplines and Specialized Learning,” also proved useful for determining similarities. A listing of declared majors and the responses considered similar by the researcher are included in Appendix D. Once the researcher reached a decision as to whether or not the student identified considered majors were similar or dissimilar to the declared major, that data was recorded and tabulated for all students who had declared a major in response to question #7 above. The results are discussed in Chapter 4.

To address questions #8 and #9 above, the researcher determined whether or not MSU offered a major that was similar to any of the considered majors stated by the students who remained in General Studies Spring 2000 semester or who exited MSU during the four semesters of the study. The MSU 1998-2000 Bulletin and Handbook of the Undergraduate Curriculum (Gaff & Ratcliff, 1996) were again used as references. Appendix D is a listing of responses considered similar. This data was compiled and the results are presented in Chapter 4.

Time Line of the Study

The project spanned the 1999-2001 academic years. During the Fall 1998 semester freshmen students in the General Studies Freshman Seminar course (GENS101) were administered the surveys on “Purposes for Education” at the beginning (pre-survey) and end (post-survey) of their first semester. As stated earlier, this information was not originally solicited for this survey, but the information had been obtained by the researcher and her colleagues and it was decided by her committee that it could provide
additional information that was pertinent and valuable, and was incorporated into the project. Also during the Fall 1998 semester, the researcher did a pilot study for a research design course at MSU investigating the over-riding question of where General Studies students declare their initial, specified majors.

While preliminary work on this project had been done during the Fall 1998 semester, it was not until Fall 1999 that the researcher and her thesis chairman decided to focus on the major declarations of General Studies students as the central question of the thesis project. After receiving permission from the Director of General Studies and the Freshman Seminar Coordinator, the actual compilation of the data commenced in the Spring 2000 semester. This continued through the Summer and Fall semesters of 2000. The bulk of the writing of the thesis was accomplished from December 2000 to February 2001.

Summary

In this chapter the researcher has detailed the methodologies used for all facets of the study from its inception to conclusion. Included were explanations of the selection of the population, sources of information (academic transcripts and survey responses), pilot projects which tested the processes used and information gathered for this study, the compilation and analysis of the data obtained, and the questions the study investigated. Chapter 4 is a presentation of the results of the study.
CHAPTER 4
RESULTS

Introduction

In the previous chapter, the researcher provided the rationale and detailed the methodologies used for all phases of this descriptive study. In this chapter she presents the findings of the study, which provide support for an answer to the question, “What is the current state of undeclared MSU students’ declarations of majors?” Specifically, the researcher sought to understand in which Colleges and majors these students declared their initial, specified majors, their semester of declaration, the number of credits completed at the semester of declaration, if they declared a subsequent major(s), or if they exited the University before or after declaring a specified major. In addition, information was gathered on the similarities between majors considered by undeclared students their first semester and the majors they declared, as well as if students were more likely to remain in General Studies (undeclared) or exit the university if they were considering majors not available at MSU.

First, the results of the data analysis are presented for each of the nine questions. Next, a summary of the meaning of the results is provided, followed by a discussion of the meaning as related to each MSU College, as well as the General Studies Program. Finally, the results are examined in relation to prior research on undecided students, retention, subsequent major change, and the predictive value of majors.
Results of Data Analysis

A total of 449 students were included in the study population. All students met the selection criteria: traditional age, entering freshmen, completion of the GENS101 course and participation in the pre- and post-surveys on “Purposes for Education.” The sample population included full- and part-time students, as well as students enrolled as provisional admits. The academic transcripts of all 449 students were reviewed over the Fall 1998-Spring 2000 semesters. A total of 281 of the original 449 students (63%) were still enrolled at MSU for the Spring 2000 semester; 215 were in declared majors and 66 remained in General Studies. During the four semesters of the study, 248 students from the original population actually declared an initial, specified major, but 33 of the declared students were not enrolled Spring 2000 (Figure 1, p. 58).
Enrollment Status of Population
Spring 2000
(Study spans Fall 1998 - Spring 2000 Semesters)
Total Number of Students = 449

<table>
<thead>
<tr>
<th>Students Enrolled, Spring 2000</th>
<th>Students Not Enrolled, Spring 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 281</td>
<td>N = 168</td>
</tr>
</tbody>
</table>

- Declared Majors: 215
- Undeclared Majors (General Studies): 66
- Exited After Declaring Major: 33
- Exited Before Declaring Major: 135
Description of the Results in Relation to the Nine Questions of the Study

**Question 1. In which Colleges and curricula at MSU do General Studies students declare their initial, specified majors?** The 248 students who declared majors over the course of the study declared in MSU's Colleges in the following order: Education, Health and Human Development = 60 (24%); Letters and Science = 49 (20%); Arts and Architecture = 47 (19%); Business = 34 (14%); Engineering = 25 (10%); Agriculture = 19 (7.5%) and Nursing = 14 (5.5%) (Table 1).

<table>
<thead>
<tr>
<th>College</th>
<th>Number of Students Declaring Major in College</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>19</td>
<td>7.5 %</td>
</tr>
<tr>
<td>Arts and Architecture</td>
<td>47</td>
<td>19.0 %</td>
</tr>
<tr>
<td>Business</td>
<td>34</td>
<td>14.0 %</td>
</tr>
<tr>
<td>Education, Health &amp; Human Dev.</td>
<td>60</td>
<td>24.0 %</td>
</tr>
<tr>
<td>Engineering</td>
<td>25</td>
<td>10.0 %</td>
</tr>
<tr>
<td>Letters and Science</td>
<td>49</td>
<td>20.0 %</td>
</tr>
<tr>
<td>Nursing</td>
<td>14</td>
<td>5.5 %</td>
</tr>
<tr>
<td>Total Declarations:</td>
<td>248</td>
<td></td>
</tr>
</tbody>
</table>

A detailed listing of the departmental majors in each College declared by the students is presented on the following page (Table 2).
Table 2.
Colleges and Majors Declared: Fall 1998 - Spring 2000

| College of Agriculture | Agricultural Business - 2  
Agricultural Operations Technology - 2  
Biotechnology - 2  
Horticulture - 10 (Landscape Design Option - 9)  
Land Resources & Environmental Sciences - 3 |
|-----------------------|------------------------------------------------------------------|
| Total declarations = 19 | **College of Arts & Architecture**  
Art - 20  
Art Education - 2  
Architecture & Environmental Design - 7  
Media & Theater Arts - 15  
Music Education - 3 |
| **Total declarations = 47** | **College of Business**  
Accounting - 2  
Finance - 7  
General Business - 17  
Management - 4  
Marketing - 4 |
| **Total declarations = 34** | **College of Education, Health and Human Development**  
Department of Education Majors:  
Elementary Education - 23  
Secondary, Broadfield Education - 2  
Technology Education - 5 (Ind. Tech Option - 1)  
Dept of Health & Human Development Majors:  
Biomechanics - 2  
Community Health - 2  
Exercise Physiology/Science - 2  
Family & Consumer Sciences - 13  
Food & Nutrition - 2  
Health Enhancement K-12 Option - 5  
Health Promotion - 1  
Pre-Physical Therapy - 3 |
| **Total declarations = 60** | **College of Engineering**  
Civil Engineering - 4  
Computer Science - 1  
Construction Engineering Technology - 8  
General Engineering - 1  
Industrial & Management Engineering - 4  
Mechanical Engineering - 7 |
| **Total declarations = 25** | **College of Letters and Science**  
Biological Sciences - 6  
Earth Sciences - 7  
English - 5 (1 teaching)  
History - 3 (1 teaching)  
Mathematics - 3 (1 teaching)  
Microbiology - 3  
Modern Languages - 2 (1 teaching)  
Philosophy - 2  
Physics - 1  
Political Science - 3  
Psychology - 8  
Sociology - 6 |
| **Total declarations = 49** | **College of Nursing**  
Nursing - 14 |
| **Total declarations = 14** |
In the College of Education, Health and Human Development (ED-HHD), the declarations were distributed exactly 50/50 between the Department of Education curricula (30) and the Department of Health and Human Development curricula (30).

The College of Letters and Science (L & S) is composed of a large and diverse number of majors and was the second most declared College with 49 declarations (20%). Major declarations were distributed among the departments in L & S in the following order: physical/life sciences (biological sciences, earth sciences, math, physics) 20 declarations; social sciences (political science, psychology, sociology) 17 declarations; and the humanities (English, history, modern languages, philosophy) 12 declarations.

**Question 2.** When (in which semester) do General Studies students declare their initial, specified majors? The majority of students who declared a major (63.5% or 157 of 248) did so during either their second or third semester at MSU. Only 36 students (14.5%) declared the first semester, with 55 students (22%) declaring the fourth semester (Table 3).

<table>
<thead>
<tr>
<th>College</th>
<th>Fall 1998</th>
<th>Spring 1999</th>
<th>Fall 1999</th>
<th>Spring 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Arts &amp; Architecture</td>
<td>14</td>
<td>19</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Business</td>
<td>2</td>
<td>8</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Educ/Health &amp; Hum Deve.</td>
<td>8</td>
<td>15</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>Engineering</td>
<td>4</td>
<td>8</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Letters &amp; Science</td>
<td>4</td>
<td>10</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Nursing</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>36 (14.5%)</strong></td>
<td><strong>69 (28%)</strong></td>
<td><strong>88 (35.5%)</strong></td>
<td><strong>55 (22%)</strong></td>
</tr>
</tbody>
</table>
As a note of clarification, all students who enrolled in the GENSl 01 course Fall 1998 entered MSU as a General Studies student or they would not have qualified to participate in the course. The 36 students whose transcripts for Fall 1998 show a College other than General Studies on this line submitted a “Change of Curriculum” card at some point during the Fall 1998 semester, prior to completion of the GENSl01 course. Because of the restricted entry status of many courses in Architecture, Art, and Media and Theater Arts (MTA), which only allow students with declared majors into many of the 100-level (freshmen) courses, some General Studies students may declare those majors in their first semester to obtain entrance into those courses (MSU Schedule of Classes, Fall 1998-Spring 2000).

**Question 3.** How many credits have General Studies students completed at the time of their initial, specified major declaration? A total of 72.5%, 179 of the 248 students who declared majors, declared with 30 or fewer completed credits. Since MSU classifies freshmen as students “with less than 30 credits” (MSU 1999-2000 Bulletin, p.29), this demonstrates the majority declared while still officially considered freshmen. An additional 53 students (21%) declared with 31-45 credits completed, which is equivalent to a first semester sophomore. Only 16 students (6.5%) declared an initial, specified major with 46 or more completed credits (Table 4).
Table 4. Credits Completed at Time of Declaration: Fall 1998 - Spring 2000

<table>
<thead>
<tr>
<th>Total Declarations by College:</th>
<th>Students with 0 - 15 Completed Credits:</th>
<th>Students with 16 - 30 Completed Credits:</th>
<th>Students with 31 - 45 Completed Credits:</th>
<th>Students with 46+ Completed Credits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG:</td>
<td>19</td>
<td>7  = 37%</td>
<td>11  = 23.5%</td>
<td>5  = 11%</td>
</tr>
<tr>
<td>A &amp; A:</td>
<td>47</td>
<td>31 = 66%</td>
<td>5  = 26%</td>
<td>6  = 31.5%</td>
</tr>
<tr>
<td>BUS:</td>
<td>34</td>
<td>7  = 20.5%</td>
<td>19 = 56%</td>
<td>6  = 17.5%</td>
</tr>
<tr>
<td>ED-HHD:</td>
<td>60</td>
<td>19 = 32%</td>
<td>23 = 38%</td>
<td>12 = 20%</td>
</tr>
<tr>
<td>ENGR:</td>
<td>25</td>
<td>10 = 40%</td>
<td>8  = 32%</td>
<td>6  = 24%</td>
</tr>
<tr>
<td>L &amp; S:</td>
<td>49</td>
<td>11 = 22%</td>
<td>16 = 33%</td>
<td>18 = 38%</td>
</tr>
<tr>
<td>NURS:</td>
<td>14</td>
<td>6  = 43%</td>
<td>6  = 43%</td>
<td>-0-</td>
</tr>
<tr>
<td>TOTALS:</td>
<td>248</td>
<td>91 = 37%</td>
<td>88 = 35.5%</td>
<td>53 = 21%</td>
</tr>
</tbody>
</table>

Question 4. How many General Studies students subsequently change their initial, specified major? A total of 22 of the 248 students (9%) who declared an initial, specified major declared subsequent majors during the four-semester study period—21 students declared a second, while only one declared a third. Just one of the subsequent declarations was within the same College, and four students returned to General Studies (Table 5). These findings are discussed in this chapter in relation to the literature.
Table 5.

<table>
<thead>
<tr>
<th>Students who declared subsequent majors (N=22 of 248 or 9%).</th>
</tr>
</thead>
<tbody>
<tr>
<td>From:</td>
</tr>
<tr>
<td>A &amp; A (4)</td>
</tr>
<tr>
<td>BUS (5)</td>
</tr>
<tr>
<td>ED-HHD (4)</td>
</tr>
<tr>
<td>ENGR (4)</td>
</tr>
<tr>
<td>L &amp; S (4)</td>
</tr>
<tr>
<td>NURS (1)</td>
</tr>
</tbody>
</table>

**Question 5.** Are General Studies students more likely to leave the University before declaring a major than after they have declared a specified major? Eighty percent, 135 of the 168 students in the study population who were not enrolled Spring 2000 exited MSU before declaring a specified major (Figure 1, p. 58).

**Question 6.** How many credits have students completed who are still enrolled in General Studies Spring Semester 2000? A total of 66 of the 248 students still enrolled Spring 2000 remained in General Studies. Of that group, 27 students had completed 30 or fewer credits (continuing freshman status), while 35 had completed 31-45 credits (first semester sophomores). Only four students had completed 46 or more credits and therefore, were nearing the University’s 60-credit limit for General Studies enrollment (Table 6).
Table 6. Credits Completed by Students Remaining in General Studies (Undeclared), Spring 2000 Semester (N = 66).

<table>
<thead>
<tr>
<th>Students with 0 - 15 Completed Credits</th>
<th>Students with 16 - 30 Completed Credits</th>
<th>Students with 31 - 45 Completed Credits</th>
<th>Students with 46+ Completed Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 = 11%</td>
<td>20 = 30%</td>
<td>35 = 53%</td>
<td>4 = 6%</td>
</tr>
</tbody>
</table>

Questions seven through nine incorporate data from both the academic transcripts and the responses to the “Majors I am considering” queries on the pre- and post-surveys on “Purposes for Education.” Similarities are noted between the declared majors and majors the students were considering their first semester. Also, whether or not students who were considering majors not available at MSU were more likely to exit the University or remain in General Studies (undeclared) was investigated.

**Question 7.** For each student, are any of the majors stated on the pre- and post-surveys as “Majors I am now considering” similar to the declared major(s)? Analysis of the data showed 69% (171 out of 248) of the students who declared a major had stated at least one similar major under consideration on either or both the pre- and post-surveys. One-fourth of the students declared a major that was not similar to any of the majors they were considering on either the pre- or post-surveys. On both surveys, 6% of the students did not respond to the “Majors I am considering” query. Based on these results, 69% (171 of 248 of the students) declared majors similar to ones they were considering their first semester. The rationale for deciding whether or not a major was similar was
discussed in Chapter 3. The declared majors and survey responses considered similar are listed in Appendix D.

**Question 8.** Are students whose survey responses listed majors under consideration that are not available at MSU more likely to remain in General Studies (undeclared) Spring Semester 2000 than students who listed majors that are available at MSU? Of the 66 students still enrolled in General Studies Spring 2000, only 18%, or 12 of those 66 students, had listed a major not available at MSU as any one of the majors they were considering on either the pre- or the post-surveys. Refer to Appendix D for a list of responses considered similar to the declared majors.

**Question 9.** Are students who exit the University more likely to have stated a major under consideration that is not available at MSU than to have stated a major that is available at MSU? A total of 135 students (30% of the original study population of 449 students) were not enrolled at MSU for the Spring 2000 semester. Only 22 of those 135 students (16%) had stated a major not available at MSU as any one of their majors under consideration on either of the surveys. In comparison, 113 of the 135 students (78%) who were not enrolled had stated one or more majors that were available at MSU as a major under consideration on either or both surveys.

In relation to questions eight and nine, students listed a total of 18 different majors they were considering that are not available at MSU. The non-MSU majors most commonly listed were in the following, related fields: advertising (5 students), communications (3 students) and journalism (3 students), and public relations (1 student).
Other majors listed that are not available at MSU were: Asian Studies, Aviation, Dental Hygiene, Equine Science, Forestry, Interior Design, Magic, Marine Biology, Meteorology, Music Production, Parks and Recreation, Pharmacy, Speech Pathology and Audiology, and Zoology. Each of these majors was only listed once or twice.

**Discussion of the Meaning**

The information gathered on where (in which Colleges and majors) students declare their initial, specified majors provides a great deal of information for MSU, as well as information that may be applied more generally to the topics of undeclared and undecided students, major selection and change, and the predictive value of stated majors. The semester of declaration and number of credits completed at the time of declaration provides information relevant for enrollment and resource planning for the different Colleges and departments and may allow them to better prepare for the movement of General Studies students into their curricula. Additionally, a limited amount of data was gathered regarding the number of undeclared students who change majors after their initial specified major declaration.

In relation to retention rates, the undeclared students in this population were retained at MSU at a rate slightly higher than students who entered the University in declared majors. The questions which explored the predictive value of majors students stated they were considering showed a majority of students who declared majors did select one that was similar to one they were considering their first semester. Finally, the
availability of particular majors at MSU did not seem to have a great influence on whether students left the university or remained in General Studies (undeclared) the final semester of the study. Each of the areas noted above will be discussed in detail in the following sections. Initially, the patterns of declaration will be examined in relation to the Colleges of major declarations.

Patterns of MajorDeclaration by College

A discussion of the meaning of the results is provided for each College at MSU. The results provide information regarding the impact of General Studies students on particular Colleges, Departments and majors. Explanations for the patterns of declaration are suggested.

The College of Agriculture. A total of 19 students (7.5% of 248) declared a major in the College of Agriculture (AG). In comparison, 6% (118) of all MSU entering freshmen (2,041) declared a major in this College Fall 1998, demonstrating the percentage of students who declared from General Studies was similar to the percentage of students who initially declared that College (Table 7, p. 69).
Table 7. Colleges of Major Declarations: Fall 1998 Study Population (General Studies) versus Fall 1998 Entering Declared Freshmen (MSU)

<table>
<thead>
<tr>
<th>General Studies Student Declarations</th>
<th>MSU Entering Declared Freshmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>19</td>
</tr>
<tr>
<td>Arts &amp; Architecture</td>
<td>47</td>
</tr>
<tr>
<td>Business</td>
<td>34</td>
</tr>
<tr>
<td>Education &amp; HHD</td>
<td>60</td>
</tr>
<tr>
<td>Engineering</td>
<td>25</td>
</tr>
<tr>
<td>Letters &amp; Science</td>
<td>49</td>
</tr>
<tr>
<td>Nursing</td>
<td>14</td>
</tr>
</tbody>
</table>

In regard to specific major declarations within AG, 10 of the 19 students declared a major in Horticulture, and 9 of those 10 declared the Landscape Design option. The large number of General Studies students specifically declaring this option is noteworthy and may suggest further study to determine if this is a consistent pattern.

The College of Arts and Architecture. A total of 47 students (19% of 248) declared a major in Arts and Architecture (A & A). In comparison, 236 (11% of 2,041) of the Fall 1998 MSU entering freshman class declared a major in A & A. The College is comprised of the School of Architecture, School of Art, Department of Media and Theater Arts (MTA), and Department of Music. Twenty-two of the General Studies students declared a major in art, 15 declared MTA, 7 declared Architecture and 3 declared Music.
It may not be surprising many students declared Art or MTA--both are popular majors on campus and their courses are in high demand. Registration for most of their courses, including many 100-level (freshmen) classes, is restricted and limited to departmental majors (MSU Schedule of Classes, Fall 1998-Spring 2000). These restrictions may have influenced the General Studies students' patterns of major declaration in those departments. For example, 70% (33 out of 47) of the major declarations from General Studies into the College of Arts and Architecture were in either the first or second semester of the study. In comparison, only half-as-many students (36% or 72 of 201) who declared in a College other than A & A declared the first or second semester. Also, as would be expected, the number of credits completed at time of declaration by students declaring A & A was also lower in comparison to credits completed by students declaring other Colleges. Sixty-six percent of students (31 of 47) declaring a major in the College of Arts and Architecture did so with 0-15 credits completed, while only 30% of students (60 of 201) who declared in one of the other six Colleges did so with 15 or fewer credits.

The records of the 33 students who declared A & A majors in either the Fall 1998 or Spring 1999 semester were reviewed through Spring 2000 to see what their retention rate was in light of their early declaration. Of those 33 students, 1 declared a subsequent major not in the College and 11 exited MSU, while 21 students (64%) were still enrolled in the original A & A major they declared their first or second semester. This figure is almost identical to the overall retention rate of the study population (63%); therefore, the early declaration in A & A does not seem to affect the retention rates of these students.
The College of Business. A total of 34 students, 14% of the study population of 248 who declared majors, declared in the College of Business; this compares to 9% (176 of 2,041) of the entering freshman class for Fall 1998. The first two years of the business curriculum, regardless of the option (Accounting, Finance, Management or Marketing) is almost identical (MSU 1998-2000 Bulletin, p. 82). Students can work on the first two years’ requirements for all options whether or not they are declared business majors; therefore, students do not need to declare a business major early. This tendency may be reflected in the patterns of business major declarations. Less than one-third (10 out of 34, or 29.5%) of students declaring business did so in the first or second semester of the study, while 70.5% (24 of 34) did so in the third or fourth semester. Almost 80% (27) of those declaring business did so with 16 or more credits completed.

The College of Education, Health and Human Development. This College is divided into two departments--The Department of Education and The Department of Health and Human Development, which in many universities are individual colleges. Therefore, when examining the declarations of majors in this College the researcher looked at the patterns in relation to the effect upon the College as a whole and upon the individual departments. First, the overall College effects are discussed.

The number of General Studies students who declared majors in the College of Education, Health and Human Development (ED-HHD) were divided equally between the two departments: 30 declared majors in education and 30 declared majors in health and human development. Seventy percent of the students who declared in ED-HHD (42
of 60) did so with 30 or fewer credits. Regarding the semester of declaration, 38% (23 of 60) declared the first or second semester of the study, while 62% (37 of 60) declared the third or fourth.

The number of General Studies students who declared majors in ED-HHD over the four semesters of the study were compared to the number of entering freshmen who declared that College Fall 1998. A total of 138 MSU entering freshmen initially declared their major in ED-HHD that fall; by Spring 2000, an additional 60 students from General Studies had declared in the College.

When this information is looked at closely, the findings are noteworthy—the General Studies students who declared in ED-HHD Fall 1998-Fall 1999 have the potential to increase the number of majors in the College by nearly 50% within one year.

<table>
<thead>
<tr>
<th>Table 8. Total Yield of Majors for ED-HHD from Fall 1998 General Studies Study Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 1998 ED-HHD Declared Majors from Entering Freshman Class =</td>
</tr>
<tr>
<td>Fall 1998-Fall 1999 Yield for ED-HHD with MSU retention rate of 70.2%</td>
</tr>
<tr>
<td>(0.702 x 138 = 96.8)</td>
</tr>
<tr>
<td>General Studies students who declared ED-HHD Fall 1998-Fall 1999 =</td>
</tr>
<tr>
<td>Total yield for ED-HHD from Fall 1998 Entering Freshman Class =</td>
</tr>
<tr>
<td>(The 45 General Studies students increase ED-HHD enrollment by 46%)</td>
</tr>
</tbody>
</table>

It should be noted however, that the MSU Fall-to-Fall retention rates are figured using only full-time students, while the study population consists of both full-time, part-time, and provisional admit students.
The number of General Studies students who declared majors in the Department of Education was substantial—30 students declared in this department. But this does not present a clear picture of the number of students who declared majors which lead to teacher certification, and therefore, realistically impact the department. Many majors that prepare and certify individuals for teaching are housed in departments other than the Department of Education. Some of these are also in ED-HHD, for example, Family and Consumer Science Education and Health Enhancement (Kindergarten-12th Grade Health Education) are both housed in the Department of Health and Human Development, but many others are located in different Colleges. For instance, Agricultural Education is located in the College of Agriculture, Music Education in the College of Arts and Architecture, and English Teaching in the College of Letters and Science.

To provide an accurate number of students from the population who declared a teaching certification major, the researcher looked at majors across the Colleges. A total of 44 of the 248 General Studies students (18%) declared a major leading to teacher certification. All 44 of these students are required to take education course work, thereby impacting the Department of Education. The teaching majors are noted in Table 2, p. 60.

The largest number of declarations in the Department of Health and Human Development were in Family and Consumer Sciences options—13 of the 30 declarations were in this major.

The College of Engineering. Historically, the College of Engineering receives the largest number of declared entering freshmen each fall—since 1995, the College has averaged 19% of the entering freshmen class. For the Fall 1998 semester 410 students
entered MSU as declared majors in the College of Engineering. A total of 25 students from the study population (10% of 248) declared engineering majors over the course of the study; 72% (18 of 25) did so with 30 or fewer credits (Table 7, p. 69). The first-year course requirements in the Engineering majors invite early commit to these majors. The rigid and sequential nature of the curriculum in the engineering majors must be followed or students will not be able to progress in the majors in a timely fashion (MSU 1998-2000 Bulletin, pp. 101-113).

The College of Letters and Science. The College of Letters and Science (L & S) received the second largest group of declared majors from the study population--20% (49 of 248 students). In comparison, 14% or 249 out of 2,041 of MSU's declared, entering freshmen Fall 1998 declared in L & S (Table 7, p. 69). The General Studies major declarations were distributed among the departments in the College in the following order: physical/life sciences (Biological Sciences, Earth Sciences, Math, Physics) had 20 declarations; social sciences (Political Science, Psychology, Sociology) with 17 declarations; and the humanities (English, History, Modern Languages, Philosophy) had 12. The most popular single major in the College was Psychology, with 8 declarations. The departmental majors declared in L & S are listed in Table 2, p. 60.

The students who declared majors in the social sciences and humanities tended to declare later than the average for the study population. Sixty-nine percent (20 of 29) of the students declaring these majors did so with 31 or more completed credits, while only 20% (4 of 20) of the physical/life sciences population did so. Social science and humanities programs have more flexible curricula which may allow students to declare

The College of Nursing. This is MSU’s smallest College and only has one major—nursing. For the Fall 1998 semester, 46 of 2,041 of MSU’s declared entering freshmen (2%) enrolled in Nursing and 14 of the Fall 1998 General Studies students later declared a major in Nursing—a noteworthy increase in the total number of majors (Table 7, p. 69). When the same criteria is applied to Nursing as was applied to ED-HHD, the following results are seen.

Table 9. Total Yield of Majors for Nursing from Fall 1998 General Studies Study Population.

<table>
<thead>
<tr>
<th>Fall 1998 Nursing Declared Majors from Entering Freshman Class</th>
<th>46 students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 1998-Fall 1999 Yield for Nursing with MSU retention rate of 70.2% (.702 x 46 = 32.3)</td>
<td>32 students retained</td>
</tr>
<tr>
<td>General Studies students who declared Nursing Fall 1998-Fall 1999</td>
<td>+12 students</td>
</tr>
<tr>
<td>Total yield for Nursing from Fall 1998 Entering Freshman Class = (The 12 General Studies students increase Nursing’s enrollment by 37.5%).</td>
<td>44 students</td>
</tr>
</tbody>
</table>

Again, it should be noted the MSU Fall-to-Fall retention rates are figured using only full-time students, while the study population consists of both full-time, part-time, and provisional admit students.

A majority of General Studies students (86% or 12 of 14) who declared nursing over the course of the study did so with 30 or fewer credits completed, although their semester of declaration was spread almost evenly over the four semesters—three students declared Fall 1998, Spring 1999, and Spring 2000, and five declared Fall 1999. The nursing program at MSU involves a lower division sequence of specific courses for the
major, as well as core requirements, which total at least 62 credits. The upper division course requirements cannot be completed in Bozeman; nursing students must complete those at campuses located in Billings, Great Falls or Missoula, Montana. These unique requirements might encourage students interested in nursing to quickly leave General Studies in order to get “on-track” in this program, since all 62 lower-division nursing requirements must be completed before they start upper-division course work at another location (MSU 1998-2000 Bulletin, pp. 138-141).

Students Remaining in General Studies. Of the 66 students still enrolled in General Studies Spring 2000, seven students (11%) had completed 0-15 credits; 20 students (30%) had completed 16-30 credits; just over-half (53%) had completed 31-45 credits; and only four students (6%) had completed 46 or more credits and were nearing the 60-credit limit for continued enrollment in the program (Table 6, p. 65). A review of these students’ transcripts showed some attended part-time (completed less than 12 credits a semester) during the study period, others “stopped-out” then returned to MSU, while still others had scholastic difficulties and attempted more credits than successfully completed. Specific numbers for these different categories were not collected.

Relationship to Prior Research

Information obtained in this study proved similar to previous research in many areas, but in a few cases, provided different outcomes. The results are discussed in relation to undecided students, retention issues, subsequent major change, and the predictive value of stated majors.
Undecided Students. The fact that almost one-third of the entering freshmen at MSU choose to enroll in General Studies each fall corroborates information from The American Freshman: Thirty Year Trends, 1966-1996 (Astin, et al. 1997) and ACT High School Profile Reports (American College Testing, 2000) in which are presented figures showing that large numbers of freshmen admit to being undecided about what to major in and the percentage of those students is growing. Also, the General Studies enrollment validates the large body of literature which states that many, if not most college students are undecided about their major at some level of concern and at some point in their college career (Anderson, et al., 1989; Baird, 1969; Foote, 1980; Gordon, 1994, 1995; Kramer, et al., 1994; Titley & Titley 1976, 1980).

Retention Issues. The literature represents inconclusiveness regarding whether or not undeclared majors are more likely candidates for attrition. Some studies present data showing undecided students are more likely to drop-out, (Chase & Keene, 1981; Foote, 1980; Maier & Herman, 1974; Pascarella & Terenzini, 1991; Tinto, 1993), while other studies dispute this claim (Anderson, et al., 1989; Astin, 1993; Bean, 1990; Gordon, 1994, 1995).

The premise that undeclared students are no more likely to drop-out than students with a declared major is supported by the findings of this study. While the vast majority of General Studies students in the population who left MSU did so before declaring a major (135 exited undeclared vs. 33 exited after declaring), the Fall 1998-Fall 1999 attrition rate for the study population (25.6%) is actually lower than the rate for the
university as a whole (29.8%). This is noteworthy, as the study population included both full- and part-time students, as well as those admitted provisionally. Both part-time and provisional (under-prepared) students are more likely candidates for attrition (Tinto, 1987; Pascarella and Terenzini, 1991; Upcraft, Gardner & Assoc., 1989).

Researchers working in the area of retention have shown that all freshmen students, whether declared or undeclared, benefit from participation in a freshman seminar type of program to help them successfully integrate into the academic and social environment of higher education (Barefoot, et al., 1998; Gordon, et al., 2000; Orazem, 2000; Tinto, 1996, 1998; Upcraft, et al., 1989). The uncontrolled factor of the effect of the GENSlOl Freshman Seminar on students' retention is discussed in a following section of this chapter.

**Subsequent Major Change.** Information from the current study on subsequent major change is supportive of the premise reported in the literature that students who enter undeclared and then declare a specific major after a period of enrollment at a university are less likely to subsequently change their major, but that finding may be premature (Kramer, et al., 1994; Titley & Titley, 1985). Of the 248 students who declared a major, only 22 (9%) subsequently changed that major (Table 5, p. 64). But the current study only looked at a four-semester period of time, while other researchers have reported on subsequent major declarations from the initial, specified declaration until graduation. Kramer, et al. (1994) showed that “open major” (undeclared) students changed their majors 25% less often than specified major students, and Titley and Titley (1985) demonstrated that over 70% of general studies (undeclared) students at Colorado
State University who graduated received their degrees in the field of their first, declared choice. While this researcher’s data suggests tentatively supporting these studies, to legitimately compare these findings, the MSU population would need to be followed until graduation.

**Predictive Value of Stated Majors.** Research using possible majors stated by students before leaving high school or early in their college career has demonstrated that expressed choices had predictive value (Davis, 1965; Holland & Gottfredson, 1975; Kramer, et al, 1994; Slaney, 1980). Data gathered in the current study can be viewed as strongly supporting these findings. More than two-thirds of the students declaring majors chose majors similar to ones they were considering their first semester.

**Uncontrolled Factors Influencing the Outcome**

As stated in the criteria for selection of the study population, all students were enrolled in the GENS101 Freshman Seminar course Fall 1998. The course is designed to address the needs of undeclared students and contains a specific component on educational planning and career exploration. In addition, all students in the course receive in-class academic advising by professional advisors before registering for their next semester’s classes and have the opportunity to meet one-on-one with an advisor frequently while enrolled in General Studies. These interventions and connections could have influenced the outcome of the study. For instance, the higher retention rate of the study population, 74.4% (study population) vs. 70.2% (All Fall 1998 entering freshmen), might be the result of the course component and academic advising.
Weaknesses in the Data

Several areas of weakness were confirmed in the data collected and analyzed for the study. First, the length of the study was limited to four semesters; while this was a reasonable period to study the initial, specified majors declared by the students, complete information on patterns of declaration of subsequent majors and persistence to graduation was not attainable.

Second, because the study was designed using data from Fall 1998-Spring 2000, many pieces of information which related to events during this time period were not congruent with the University’s enrollment management data. For instance, some students who were enrolled Spring 2000 were not permitted to continue at MSU based on their grades at the end of that term. This information was not posted on their academic transcripts until Summer of 2000 and so is not included in the study, even though the outcome is directly related to events which took place during the time of the study. If included in the data, this information would have somewhat changed the retention figures.

Finally, the study focuses on the population of entering, General Studies freshmen for only one fall semester. Obviously, the patterns of major declaration would need to be studied with entering classes from several fall semesters to obtain a more reliable picture of where and when General Studies students declare their initial, specified majors.
Summary of Results

The researcher presented the major declarations and patterns of declaration of one entering class of General Studies, traditional aged freshmen over a four-semester period (Fall 1998-Spring 2000). The students declared majors in MSU’s seven Colleges in the following order (most to least number of students): 1) Education, Health and Human Development; 2) Letters and Science; 3) Arts and Architecture; 4) Business; 5) Engineering; 6) Agriculture; and 7) Nursing (Table I, p. 59). These patterns of declaration are not consistent with the percentages of incoming freshmen who initially declared in those Colleges (Table 7, p. 69). For instance, 24% of the General Studies students declared in ED-HHD, while only 7% of the Fall 1998 entering freshman class did. On the other hand, 20% of the Fall 1998 entering freshmen declared majors in the College of Engineering, while only 10% of the General Studies’ declarations were in that College.

In relation to the patterns of declaration, of the 248 students in the study who declared a major, 63.5% (157) did so in either the second or third semester of the study (Table 3, p. 61). Also, 72.5% (179) had completed 30 or fewer credits when they declared (Table 4, p. 63). Based on these figures, the majority of General Studies students declare majors when they are officially freshmen (have completed 30 or fewer credits) or first-semester sophomores (have completed 31-45 credits). Of the 248 students in the study who declared a major, only 9% (22) declared a subsequent major during the four semesters of the study (Table 5, p. 64).
The retention rate for the study population was 63% as of Spring 2000--281 of the original 449 students were enrolled that semester. Overall retention figures for the University are not available for Spring 2000 as the University only charts Fall-Fall rates. But, when the Fall 1998-Fall 1999 retention rates of the study population were compared to the overall MSU entering freshmen retention rates, the rate of the study population was higher--74.4% of the General Studies students in the population were enrolled Fall 1999, while only 70.2% of the entire Fall 1998 entering class returned that semester. As stated previously, the MSU Fall-to-Fall retention rates are figured using only full-time students, while the study population consisted of students enrolled full-time, part-time, and provisional admits. This is noteworthy because previous researchers showed retention rates are lower for part-time and under-prepared students (Tinto, 1987; Pascarella & Terenzini, 1991; Upcraft, et al., 1989).

Students in the study who had declared a specified major outside General Studies were less likely to leave MSU than students who were enrolled in General Studies--of the 168 studied students who exited MSU during the period of the study, 80% (134) had not declared a specified major. But one must also take into consideration the fact that the majority of students (68%, N = 114) who exited MSU left after either their first or second semester, while only 42.5% (105) of studied students who declared a major in their first or second semester.

The majors students stated they were considering had a strong predictive value for the majors they declared--69% of the students who declared, selected a major that was similar to at least one major they said they were considering during their first semester.
But, the lack of some majors at MSU does not seem to be a dominant reason for students to leave the University or remain in General Studies. Only 18% (12 of 66) of those still enrolled in General Studies Spring 2000 had listed a major not available at MSU and just 16% (22 of 168) of the students who exited had stated a major not available at MSU as any one of their majors under consideration.

Chapter Summary

In Chapter 4 the researcher presented the results of the study in detail, discussing them in relation to each of the nine guiding questions, as well as in relation to each of the Colleges at MSU and previous research. In Chapter 5 the researcher presents the conclusions of the study with a discussion of the broader implications and the researcher’s comments and recommendations for further study.
In this chapter the researcher presents the conclusions of the study, with a
discussion of the broader implications of the project. Also, the researcher includes
comments and recommendations for further study, in addition to recommendations for
implementation of the findings of the study.

Summary of the Problem and Methodology and Results, Conclusions

Summary of the Problem. The current state of where General Studies
(undeclared) students at Montana State University declared their initial, specified majors,
and what their patterns of major declaration were after leaving General Studies was
unknown by the University. While nearly one-third of the fall semester, entering
freshmen classes from 1995-2000 (average N = 623 or 32%) entered as General Studies,
undeclared students, MSU had no specific knowledge of the Colleges and curricula in
which these students declared their initial, specified majors. In addition, it was unknown
in which semester they declared, how many credits they had completed at the time of
declaration, and how many students subsequently changed that initial, specified major.
For students who left MSU, it was unknown if they were more likely to leave before or
after declaring a major. Also unknown were the similarities between majors being
considered by undeclared students their first semester and the majors they declared, and if students were more likely to remain in General Studies (undeclared) or exit the University if they were considering majors not available at MSU. This information could be beneficial to MSU for resource planning and management, as well as a better understanding of undeclared students. All of the problems listed above were investigated in this quantitative, descriptive study and will be discussed in light of the results presented in the previous chapter.

Summary of the Methodology. The initial population for the study was all students enrolled in the General Studies Freshman Seminar course (GENS101) Fall 1998. All traditional aged (17-21 years old), entering freshmen (12 or fewer college credits completed), both full- and part-time (including provisional admits), who were enrolled in the General Studies Program are required to take this course. The requirements for enrollment in the course provided a homogeneous population for the study and the records of the students enrolled in the course were reviewed to guarantee they fell within these parameters. A second criteria for inclusion in the study population was participation in a voluntary survey on “Purposes for Education” given in-class to all GENS101 students the first week, and again in the final week of the semester. Finally, students had to complete and receive a grade for the Fall 1998 GENS101 course to be included in the study. Based on the criteria listed above, a total of 449 students were included in the study population.

Two sources of information were used to obtain data for the study. One source was the Fall 1998-Spring 2000 MSU academic transcripts of all students in the study
population. These records provided the following information: (a) enrollment Spring Semester 2000, or last semester of attendance; (b) the college and major declaration of the initial, specified major, and the semester of that declaration; (c) credits completed at the time of major declaration, exit from MSU, or if remaining in General Studies Spring 2000; (d) subsequent major declarations, including semester and number of credits completed.

The second source of information were the surveys on “Purposes for Education” given to the GENS101 students Fall 1998 semester. Students’ responses to the query: “Two majors I am now considering are...” were collected, recorded and the results analyzed to answer the questions regarding the similarities between the declared majors and majors the students were considering their first semester, as well as if students were more likely to remain in General Studies (undeclared) or exit the University if they were considering majors not available at MSU.

Summary of the Results of the Study. A total of 248 students from the study population (N = 449) declared majors over the course of the study. They declared in one of MSU’s seven Colleges in the following order: 1) Education, Health and Human Development--60 declarations (24%); 2) Letters and Science--49 declarations (20%); 3) Arts and Architecture--47 declarations (19%); 4) Business--34 declarations (14%); 5) Engineering--25 declarations (10%); 6) Agriculture--19 declarations (7.5%); and 7) Nursing--14 declarations (5.5%) (Table I, p. 59).

Most students who declared a major (157 of 248 or 63.5%) did so in either their second or third semester of enrollment, and 93.5% (232 of 248) declared with less than
46 credits (Table 3, p. 61 & Table 4, p. 63). These figures demonstrate that the majority of General Studies students declare majors when they are officially considered freshmen or first-semester sophomores by the University. Of the students who declared a major, only 9% (22 of 248) declared a subsequent one during the four semesters of the study (Table 5, p. 64).

The retention rate for the study population over the four-semester period was 63% as of Spring 2000--281 of the original 449 students were enrolled that semester. Students in the study who had declared a specified major outside General Studies were less likely to leave MSU than students who were enrolled in General Studies--of the 168 students who exited MSU during the study, 80% (134) had not declared a specified major (Figure 1, p. 58). But one must also take into consideration the fact that the majority of students (68%, 114 of 168) who exited MSU left after either their first or second semester, while only 42.5% of students (105 of 248) who declared a major did so their first or second semester.

Overall MSU retention figures for entering freshmen from Fall 1998 to Spring 2000 were not available as the University only charts Fall-Fall retention rates, but when the MSU Fall 1998-Fall 1999 retention rates for entering freshmen were compared to the retention rates for the study population for that same period, the General Studies students were retained at a higher rate. The Fall 1998-Fall 1999 retention rate for the study population was 74.4% (334 of the original 449 students were still enrolled), while the MSU rate was 70.2%. This is noteworthy, because the study population included both full- and part-time students, as well as those admitted provisionally, while the MSU figures only included full-time students. The literature documents that part-time and
provisional (under-prepared) students are more likely candidates for attrition (Pascarella & Terenzini, 1991; Tinto, 1993; Upcraft, et al., 1989); therefore, the fact retention rates for the study population were higher than the MSU rates lends even more importance to the findings. Retention studies comparing full-time General Studies students enrolled in the GENS101 course with full-time, MSU entering freshmen have been completed since 1994. Fall-to-fall retention rates from 1994-1995 to 1997-1998 are almost identical for these two populations: An average of 69.2% of the full-time General Studies students enrolled in GENS101 have been retained, while an average of 69.6% of all full-time, entering freshmen have been retained (Orazem, 1999).

The information gathered on the majors students stated they were considering showed this has a strong predictive value—69% (171 of 248) of the students who declared, selected a major that was similar to at least one major they said they were considering during their first semester. But, the lack of some majors at MSU does not seem to be a dominant reason for students to leave the University or remain in General Studies. Only 18% (12 of 66) of those still enrolled in General Studies Spring 2000 had listed a major not available at MSU, and just 16% (22 of 168) of the students who exited had stated a major not available at MSU as any one of their majors under consideration.

**Interpretation of the Results.** The following general conclusions can be drawn from the findings of the study. The students who enroll in the General Studies Program take some time before declaring a specific major, but they do not take too long—93.5% (232 of 248) declared while they were either freshmen or first-semester sophomores (with less than 46 completed credits), in advance of the 60-credit limit for remaining in General
Studies. The majority also has an idea of the area of study in which they want to specialize—69% (171 of 248) declared a major in an area similar to one they were considering their first semester of enrollment. The students declared majors across campus, testifying to the diverse interests and academic abilities of the undeclared student population. Also, the slightly higher retention rate for this group demonstrates a level of persistence equal to students who declared a specified major on entrance. These findings tend to support Lewallen’s statement that “undecided students represent more a microcosm of the college population than a highly distinguishable group” (1995, p. 12). But, there are some distinct aspects of the study group, as well.

The high percentage of students who declared majors in the College of Education, Health and Human Development is remarkable when compared to the percentage of students who declared ED-HHD upon entrance: 24% vs. 7%, respectively. General Studies students declaring in Nursing declared at a rate over twice as high as the declared entering population: 5.5% vs. 2%, respectively. Why such a difference? There is also a marked difference between the percentage of General Studies students who declared majors in the College of Engineering in comparison to the percentage who initially declared in that College, but from the opposite perspective—General Studies students declared at the rate of 10% versus 20% of the declared entering freshmen. The percentage of General Studies students who declared in MSU’s other Colleges were similar to the percentages of students declaring upon entry (Table 7, p. 69).

The College of Agriculture declarations of the study population also show some interesting results. Of the 19 studied students who declared in AG, 10 declared a major in Horticulture: There are 11 different majors in the College, yet half of the AG declarations
were in just one major. When closely examined, 9 of the 10 Horticulture declarations were in the Landscape Design option. Also, when looking at the AG declarations, only four were in areas one would obviously associate with agriculture--Agricultural Business and Agricultural Operations Technology. The other fifteen declarations were in majors one may not inherently associate with a College of Agriculture--Biotechnology, Horticulture/Landscape Design, and Land Resources and Environmental Sciences.

Course enrollment restrictions present in some departments and the structure of course requirements in certain majors, as discussed in Chapter 4 under "Patterns of Major Declaration by College," seems to have an effect on when the General Studies students declare their majors. The "majors only" course enrollment restrictions on 100-level courses offered by many departments in the College of Arts and Architecture seems to have had an effect on when students declared those majors: 66% (31 of 47) of the students who declared majors in A & A did so with only 0-15 credits completed. Students declaring in the Colleges of Engineering and Nursing, which have structured, more rigid course requirements and sequences also tended to declare earlier in their college careers. In comparison, students who declared in more flexible curricula (business, social sciences, humanities) tended to declare later.

Discussion of the Broader Implications

Theoretical Implications

The research on undecided students has focused on who they are, as well as why they are undecided, change majors and why selection of a major is important to them.
This researcher looked at some aspects of undecided students that had not been addressed as thoroughly; namely, the questions of what majors these students select, when they select them, and their rates of persistence in that major. Also, there is little information on undecided students after their first year--this study is an in-depth look at their patterns of major declaration over a two-year period.

The results suggest these students have diverse academic interests, as exhibited by their major declarations in curricula across the campus; they persisted at rates even slightly better than the University population as a whole. Declaring a specified major does seem to be important to them since more than 90% did so while they were either officially freshmen or first semester sophomores. Finally, during the first semester the majority do have an idea of what area of study they will pursue. These findings support what has been presented in the literature regarding undecided students: a) they are not very different from decided students (Foote, 1980; Lewallen, 1995; Titley & Titley, 1980, 1985; b) they persist as rates similar to decided students (Anderson, et al, 1989; Astin, 1993; Bean, 1990); c) finding a major is important (Gordon, 1995; Orazem, 2000; Sagaria, et al, 1980); and what they think they will major in has predictive value for what they choose (Davis, 1965, Holland & Gottfredson, 1975; Kramer, et al, 1994; Slaney, 1980). Also, while the researcher only studied four semesters, her analysis supports the contention that students who are initially undeclared persist in their first specified major at higher rates than students who enter in a declared status (Kramer, et al., 1994).
Practical Implications

There are many findings from this study which have important practical implications for Montana State University. The implications are discussed in relation to the University, the Colleges and Departments, and General Studies.

Implications for the University. The large number of students in General Studies (one-third of the entering freshmen class each Fall) obviously impact the entire campus. In these financially lean days when every student who is retained is important, when every course needs to be filled, and every credit hour that is funded is important, information which can help the University in planning and allocation of resources is critical (Altbach, Berdahl, & Gumport, 1999; Hossler, et al., 1990).

The fact that the Fall 1998-Fall 1999 retention rate of the study population (which included part-time and provisional students) was even slightly higher than the overall MSU retention rate of just full-time students (74.4% vs. 70.2%), demonstrates the successful retention of the General Studies entering freshmen who were provided with the combination of the program’s academic advising and Freshman Seminar course.

The findings on the availability of majors at MSU that students were considering indicated that students were not likely to exit the University or remain in General Studies (undeclared) if MSU did not offer a major they were considering. But, the majors not available at MSU that were most often listed by students were grouped in the area of communications--majors in communication, journalism, advertising and public relations seem to be the most in demand.
Implications for Colleges and Departments. The Colleges and Departments which receive the largest number of students from General Studies are undoubtedly impacted by their declarations. An awareness of the potential increase in enrollment from this population could aid Departments in providing an effective educational environment for these students. The Colleges most affected by the movement of General Studies students are Education, Health and Human Development and Arts and Architecture. The most striking finding is the influence of General Studies students’ declarations of majors on the enrollment in ED-HHD—theoretically, that College realized an enrollment increase of 46% in just two semesters due to the Fall 1998 General Studies students. In addition, the Department of Education is particularly impacted by the large number of students from the study population (44) who declared a major leading to teacher certification. (The teaching major declarations are noted in Table 2, p. 60). Whether or not that major is located in ED-HHD or another College, all of these students are required to take education course work, thereby impacting the Department’s resources, curriculum and student teaching experiences.

Also, the College of Arts and Architecture increased its 1998 Fall enrollment by an additional 14% percent quite quickly, either during that semester or Spring 1999, with the declarations of the 31 students from General Studies. This undoubtedly impacted the College’s course enrollments and advising load. While anticipation of major declarations from General Studies students is important for all the Colleges, the impact for ED-HHD and A & A is particularly dramatic and worthy of their consideration.
Some individual departments and majors received a large number of the General Studies students and again, the impact of these declarations on the departments is worthy of their consideration (Table 2, p. 60). Examples are the Landscape Design option in Horticulture with 9 of the 19 declarations in the College of Agriculture; Elementary Education with 24 declarations, and a total of 44 majors across campus which lead to teacher certification; Art with 20 and Media and Theater Arts with 15 additional majors; Nursing with 14 declarations; and finally Family and Consumer Science with a total of 13 more majors via General Studies. These numbers certainly affect the course availability, faculty and staff workloads, and resources of each of these departments.

Implications for General Studies. The two components of General Studies, academic advising and the Freshman Seminar Program, are successful in facilitating students’ movements from an undeclared to declared major status, as demonstrated by the findings of this study. Connections to faculty and other students, involvement in the campus, and finding the right “fit” in a major have all been documented as important factors for persistence, particularly during the first year (Astin, 1993; Barefoot, et al., 1998; Gordon, et al., 2000; Orazem, 2000; Pascarella & Terenzini, 1991; Tinto, 1997, 1998; Upcraft, et al., 1989). The individualized academic advising component of the program, in conjunction with the Freshman Seminar course curriculum and format serve to connect students with their peers and University personnel, with campus and community resources, and help students work toward finding that “right fit” in a major. The success of these practical applications of theory is supported by the researcher’s findings.
The evidence that a majority of students declared majors similar to ones they were considering their first semester of enrollment suggests the students’ knowledge of their own interests is an important resource for selection of a major. The major/career exploration segment of the Freshman Seminar course is designed to help students connect majors they are considering with their own potential, as well as connecting students to appropriate departments at MSU where they can explore or perhaps eventually pursue these majors. The data from the study supports the continuation of this segment of the course. Also, supported is the practice of advisors discussing students’ interests with them to help them clarify their ideas and assist in their academic planning.

All of the above findings contain important information for various levels of the University.

Limitations of the Study

The most important limitation of the study is the fact that it looks at only one General Studies entering freshman class--this limits the ability to determine if the findings are indicative of only that year or indicate a pattern. Also, by only looking at a four-semester period the students’ declarations of subsequent majors and rates of persistence to graduation were not determined. A picture of the study population’s patterns from enrollment to graduation would be desirable.
Summary

The over-arching question of the study asked: “What is the current state of major declarations of General Studies students?” The following information was learned.

► This population of undeclared students was retained at a level similar to the overall retention rate of MSU’s entering freshmen from that Fall: 74.4% vs. 70.2%.

► The majority declared their majors in either their second or third semester of enrollment, and an overwhelming 94.5% did so with less than 46 completed credits, well in advance of the University’s 60-credit limit for General Studies enrollment.

► They declared majors across campus in a variety of curricula, but three Colleges received the majority of students: ED-HHD, A & A and L & S.

► Their declarations were quite different than declarations of entering, declared students, particularly for ED-HHD and Engineering.

► For the time period of the study, the students persisted in the initial, specified major they declared—only 9% (22 of 248) declared a subsequent one.

► The majority of students (69% or 171 of 248 students) did declare a major in an area similar to one they were considering during their first semester.

► Whether or not MSU offers a major they were considering their first semester did not have a large effect upon attrition or remaining undeclared.

Based on this information, the researcher makes the following recommendations.
Recommendations and Implementation of Findings

The following recommendations, based on the information garnered from this study, are presented in relation to the University as a whole, as related to the Colleges and Departments, and to the General Studies Program in particular.

Recommendations for the University. The researcher recommends that the University make data on students' patterns of major declaration and academic progress easily accessible to Colleges and Departments so administrative decisions can be based on current, factual information. Awareness of students' educational patterns and needs must be a major consideration when making fiscal decisions at all levels of the University.

One of the five “FY02 University Budget Priorities” stated by MSU is to “Attract, support and retain students” (University Planning, Budget & Analysis, 2001). In light of that goal, the researcher makes the following three recommendations. First, funding for the General Studies’ academic advising process and Freshman Seminars must be supported at a level which allows access to these services for all General Studies students.

Second, the implementation of similar programs for all entering students at the University should be considered. Individualized academic advising and the opportunity to make connections with the campus community is beneficial for all entering students (Barefoot, et al., 1998; Gordon, et al., 2000; Orazem, 2000; Tinto, 1996, 1998; Upcraft, et al., 1989). To accomplish this, the researcher proposes a Freshman Seminar course for all entering freshmen and a University advising center which would provide all freshmen with consistent academic information and connect them to Departments and majors on
campus. Based on the research which demonstrates that the majority of all college students are undecided about their major and career at some level, the opportunity for all students to learn the process of major and career exploration is recommended (Anderson, et al., 1989; Baird, 1969; Foote, 1980; Gordon, 1994, 1995; Kramer, et al., 1994; Titley & Titley 1976, 1980). This could be facilitated by the interactions of an advising center, departmental contacts and Career Services.

A third recommendation relates to the availability of majors at MSU. While the retention rate of students did not seem to be greatly effected by the availability of majors at MSU, there was a strong indication of an interest for majors in the area of Communications. Twelve students listed majors in this field (advertising, communication, journalism and public relations), as majors they were considering—no other major not offered at MSU was listed by more than two people on the surveys given to the students their first semester. MSU eliminated a Communications major option with the implementation of the 2000-2002 Bulletin; the researcher suggests revisiting this decision, or consider offering a sequence of courses in the Communications area leading to a minor, or at least an area of emphasis.

Recommendations for Colleges and Departments. Information from this study should be made available to the campus community; therefore, the following individuals and groups will be contacted: The Vice Provost for Academic Affairs, the Deans and Assistant Deans of the Colleges, the staff of General Studies, and administrators and advisors in Departments.
Communication between General Studies and Colleges and Departments must be facilitated. First, Colleges and Departments need to know the numbers of students they receive from General Studies for planning of resources so their programs are able to absorb these students.

Second, it is important that academic advising issues are addressed on both sides—the Colleges and Departments need to be aware of how General Studies students are advised and prepared to enter their majors, and General Studies needs to be aware of the different expectations and requirements Departments have for students in their majors. Therefore, the researcher recommends an on-going dialogue between General Studies and the Colleges and specific Departments which are impacted by General Studies students. This will assist in the transmission of current and correct information from Departments to General Studies advisors and on to students considering those majors.

Third, Colleges and Departments should be willing to receive General Studies students interested in pursuing their majors, answer their questions and facilitate their integration into that program. The researcher suggests each department select an individual who will serve as a contact for General Studies students interested in that major.

Recommendations for General Studies. Information from this study will be presented to all General Studies staff to provide them with an awareness of where and when the students declare their majors. The following specific findings affect the advising process and need to be considered by the staff.
First and foremost, as stated in the previous section on recommendations for Colleges and Departments, communication between those entities and General Studies is critical for providing accurate academic advising and facilitating the successful transition of undeclared students into major programs. This must be an on-going process, with General Studies initiating and continuing the contacts.

Second, the 60-credit limit policy for enrollment in General Studies should be reviewed. Over 90% of the students who declared a major did so with less than 46 completed credits; therefore, the 60-credit limit may no longer be necessary. How a change would effect students, General Studies and other University offices and Departments would need to be considered.

Third, the number of credits students have completed is more critical for understanding their patterns of declaration than the semester of their enrollment. For example, 94% of students who were still enrolled in General Studies the fourth semester of the study were not nearing the 60-credit limit for enrollment. Therefore, advisors should be aware of the number of credits completed when advising continuing students.

Finally, the finding that 69% of the General Studies students who declared a major did so in a field similar to one they were considering their first semester supports the practice of asking students what they are interested in and suggesting how they might pursue that interest at MSU.

**Further Research.** To better understand MSU’s undeclared student population, as well as better understand undecided students overall, the study population should be followed until graduation to investigate persistence in their initial, specified major, as
well as determine their overall persistence. Additionally, tracking the major declarations and patterns of additional fall semester, entering General Studies freshmen would help determine if the findings of this study are limited to this one group or apply to MSU’s undeclared student population over a longer period of time.

The researcher also recommends studying the patterns of major declaration of MSU’s students who enter in declared majors to determine if students persist in those majors or change. This information is just as critical for understanding retention and student success, as well as University planning and budgeting.

Procedural adjustments. In a future study, the number of credits completed at the time of declaration, exit, etc. would be focused on as it became obvious they provided a more realistic picture of the patterns of declaration than the semester of declaration or exit. Also, data on grade point averages and credits attempted vs. credits completed should be collected and analyzed to determine the rate of success of students in the different categories—for example in relation to when they declared a major, exited the University, or if they remained in General Studies.

Also, instead of a four-semester period of study, academic records of the fifth semester should be reviewed. This would provide more complete information on fall-to-fall retention rates which would be congruent with the University’s enrollment management data.

Replication. The researcher would recommend replicating this study, with the adjustments noted above, to investigate if the findings from this study are limited to this
one population or are indicative of broader patterns of major declaration of General Studies students on the MSU campus as well as other campuses.

**New Questions.** While this study looked at where and when students declared their majors, it would be interesting to pursue a qualitative research project which explored the following questions: Why do students declare the majors they do, and when they do? And, what programs, events or individuals influence their declarations? This information would help to complete the picture on the major declarations of undeclared students.

**Chapter Summary**

The researcher has, in Chapter 5, presented the conclusions of the study, with a discussion of the broader implications of the project. Also, the researcher has included comments and recommendations for further study and implementations of the findings of the study.
BIBLIOGRAPHY


APPENDICES
APPENDIX A

SAMPLE ACADEMIC TRANSCRIPT
# Student Academic Transcript

**Student Name:**

<table>
<thead>
<tr>
<th>Institution Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1998 Fall Semester</strong></td>
</tr>
</tbody>
</table>

**College:** Dept of General Studies  
**Major:** General Studies

### Academic Standing:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Course</th>
<th>Campus</th>
<th>Title</th>
<th>Grade</th>
<th>Credit Hours</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>150</td>
<td>MSU-Bozeman</td>
<td>Computer Literacy</td>
<td>A</td>
<td>3.00</td>
<td>12.00</td>
</tr>
<tr>
<td>ESCI</td>
<td>111N</td>
<td>MSU-Bozeman</td>
<td>Physical Geology</td>
<td>A</td>
<td>4.00</td>
<td>16.00</td>
</tr>
<tr>
<td>GENS</td>
<td>101V</td>
<td>MSU-Bozeman</td>
<td>Freshmen Seminar</td>
<td>A</td>
<td>3.00</td>
<td>12.00</td>
</tr>
<tr>
<td>MATH</td>
<td>181M</td>
<td>MSU-Bozeman</td>
<td>Calculus &amp; Anal Geom I</td>
<td>B</td>
<td>4.00</td>
<td>12.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attempt Hours</th>
<th>Passed Hours</th>
<th>Earned Hours</th>
<th>GPA Hours</th>
<th>Quality Points</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current: 14.00</td>
<td>14.00</td>
<td>14.00</td>
<td>14.00</td>
<td>52.00</td>
<td>3.71</td>
</tr>
<tr>
<td>Cumulative: 14.00</td>
<td>14.00</td>
<td>14.00</td>
<td>14.00</td>
<td>52.00</td>
<td>3.71</td>
</tr>
</tbody>
</table>

***This is NOT an Official Transcript***

### 1999 Spring Semester

**College:** Dept of General Studies  
**Major:** General Studies

### Academic Standing:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Course</th>
<th>Campus</th>
<th>Title</th>
<th>Grade</th>
<th>Credit Hours</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM</td>
<td>131N</td>
<td>MSU-Bozeman</td>
<td>General Chemistry I</td>
<td>A</td>
<td>4.00</td>
<td>16.00</td>
</tr>
<tr>
<td>GEOG</td>
<td>105SG</td>
<td>MSU-Bozeman</td>
<td>World Regional Geog</td>
<td>A</td>
<td>3.00</td>
<td>12.00</td>
</tr>
<tr>
<td>HIST</td>
<td>156H</td>
<td>MSU-Bozeman</td>
<td>Amer &amp; Wrld Since 1865</td>
<td>B+</td>
<td>4.00</td>
<td>13.20</td>
</tr>
<tr>
<td>MATH</td>
<td>182M</td>
<td>MSU-Bozeman</td>
<td>Calculus &amp; Anal Geom II</td>
<td>C</td>
<td>4.00</td>
<td>8.00</td>
</tr>
<tr>
<td>MUS</td>
<td>212FG</td>
<td>MSU-Bozeman</td>
<td>Hist Of Amer Pop Music</td>
<td>B</td>
<td>3.00</td>
<td>9.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attempt Hours</th>
<th>Passed Hours</th>
<th>Earned Hours</th>
<th>GPA Hours</th>
<th>Quality Points</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current: 18.00</td>
<td>18.00</td>
<td>18.00</td>
<td>18.00</td>
<td>58.20</td>
<td>3.23</td>
</tr>
</tbody>
</table>
Cumulative: 32.00 32.00 32.00 32.00 110.20 3.44

***This is NOT an Official Transcript***

1999 Fall Semester

College: College of Arts & Architecture

Major: Art

Academic Standing: Good Standing

<table>
<thead>
<tr>
<th>Subject Course</th>
<th>Campus</th>
<th>Title</th>
<th>Grade</th>
<th>Credit Hours</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 110</td>
<td>MSU-Bozeman</td>
<td>2-D Fundamentals</td>
<td>A</td>
<td>3.00</td>
<td>12.00</td>
</tr>
<tr>
<td>ME 110</td>
<td>MSU-Bozeman</td>
<td>Engr Design Graph</td>
<td>A</td>
<td>2.00</td>
<td>8.00</td>
</tr>
<tr>
<td>PHYS 211N</td>
<td>MSU-Bozeman</td>
<td>Gen &amp; Mod Phys I</td>
<td>A-</td>
<td>4.00</td>
<td>14.80</td>
</tr>
</tbody>
</table>

Attempt Hours: 9.00
Passed Hours: 9.00
Earned Hours: 9.00
GPA Hours: 9.00
GPA Points: 34.80
GPA: 3.86

Current: 41.00
Cumulative: 145.00

2000 Spring Semester

College: College of Arts & Architecture

Major: Art

Academic Standing: Good Standing

<table>
<thead>
<tr>
<th>Subject Course</th>
<th>Campus</th>
<th>Title</th>
<th>Grade</th>
<th>Credit Hours</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 111</td>
<td>MSU-Bozeman</td>
<td>3-D Fundamentals</td>
<td>A-</td>
<td>3.00</td>
<td>11.10</td>
</tr>
<tr>
<td>ART 203F</td>
<td>MSU-Bozeman</td>
<td>Renaissance-Modern Art</td>
<td>A</td>
<td>3.00</td>
<td>12.00</td>
</tr>
<tr>
<td>ART 238F</td>
<td>MSU-Bozeman</td>
<td>Representational Draw</td>
<td>A</td>
<td>4.00</td>
<td>16.00</td>
</tr>
<tr>
<td>BIOL 101N</td>
<td>MSU-Bozeman</td>
<td>Biology of Organisms</td>
<td>A</td>
<td>4.00</td>
<td>16.00</td>
</tr>
</tbody>
</table>

Attempt Hours: 14.00
Passed Hours: 14.00
Earned Hours: 14.00
GPA Hours: 14.00
GPA Points: 55.10
GPA: 3.93

Current: 55.00
Cumulative: 200.10

***This is NOT an Official Transcript***
APPENDIX B

"PURPOSES FOR EDUCATION" SURVEY DOCUMENTS
STUDENT CONSENT FORM

Purpose of the Project

The subject of this research is, “Assessing Philosophical Shifts”. The purpose of the study is to assess shifts in students’ philosophies of higher education as a result of completing Freshman Seminar, general education, major course work and completion of a baccalaureate degree. Students enrolled in a General Studies Freshman Seminar course at Montana State University-Bozeman during Fall semester of 1998 are the subjects for this study.

Research Design and Methods

As a part of this study, you will complete a survey now, as an in-class exercise in your Freshman Seminar class, at the completion of this semester as an in-class exercise, and on a regular basis for the duration of your undergraduate career at MSU-Bozeman. Your academic records from the Student Information System (SIS) may serve as a source of reference. This project is funded by the Provost’s Office at MSU-Bozeman.

Risks and Benefits to the Participant

Risks - This study presents minimal, if any, physical or psychological risks to you. Participation is voluntary. You may withdraw at any point, and the refusal to participate will not involve penalty or loss of benefits to which you are otherwise entitled. This study will have no impact on the grade in your Freshman Seminar course or any subsequent course work at MSU-Bozeman.

Benefits - You may have a clearer understanding of your own personal philosophy of higher education. A copy of the completed study will be available for your viewing upon request.

Time Line

The project will occur during Fall, 1998 and continue through the duration of your undergraduate career at MSU-Bozeman.

Confidentiality

You will not be identified by name in any subsequent reporting of the data. The investigator directing this research project is Dr. Ken Borland, Assistant Professor in the Dept. Of Education. Co-researchers in this project are Vicki Orazem, Freshman Seminar Coordinator and Diane Donnelly, Assistant Coordinator. If you have any questions or seek more information, please feel free to contact the investigator, Dr. Ken Borland. Dr. Ken Borland can be reached at (406) 994-5795. If you choose to participate in this study, please sign and date the consent form.

Participant’s signature  Today’s Date
Pre Freshman Seminar Questionnaire

Thank you for completely and thoughtfully answering all of the following questions in the next 15 minutes.

Your student ID#: ________________ Your name: ________________________________________

Date of birth: __/__/____ Male: ___ Female: ___

Year of high school graduation: __________ or GED completion: __________

Approximate high school graduating class size: __________

General Studies Freshman Seminar Year: _________ Semester: __________ Section: _________

Check which of these persons has attended college:

Mother: ___Yes, ___No Father: ___Yes, ___No

Use numbers to complete this sentence: "I have ___ brothers and sisters, and ___ of them attended(ed) college."

Two majors (areas of study) you are considering: ______________________________________ & ______________________________________

1. Rank these individuals or groups from 1-9 (most to least important) in terms of their influence on you becoming a college student. Place an “X” on the line(s) for individuals or groups that had no influence.
   - immediate family (parents, siblings)
   - extended family (grandparents, aunts and uncles, cousins)
   - high school peers
   - high school teacher(s)
   - high school guidance counselor
   - community’s expectations (neighbors, employers, etc.)
   - religious organization, clergy, religious literature, divine inspiration/direction, etc.
   - yourself (explain): __________________________________________________________________
   - other (explain): __________________________________________ — — — ——

2. Rank these purposes for a college education from 1-6 (most to least important) to express how you prioritize them as purposes for your college education.

“I want my college experience to help me ...
   - develop the abilities of my mind and to be a better thinker.
   - better understand the world, my culture and the cultures of others.
   - solve problems and to learn from my life experiences.
   - critically reflect on society and to change my world.
   - gain specific work/task related skills to get a job.
   - develop as a whole person (including morally/spiritually) so I can better determine values/priorities.

3. How strong is your degree of certainty about how you ranked the provided purposes for your college education in question #2? Circle one.
   A. None  B. Weak  C. Moderate  D. Strong  E. Very strong

4. If you have a purpose for your college education which you rank higher than all purposes in question #2, write it here: ______________________________________ & ______________________________________

5. How strong is your degree of certainty about why you are now a college student? Circle one.
   A. None  B. Weak  C. Moderate  D. Strong  E. Very strong

6. Estimate how important you think the General Studies Freshman Seminar course will be, at the end of the semester, to the determination of a top purpose for your college education. Check one.
   — Not important, ___ A little important, ___ Moderately important, ___ Important, ___ Very important
Post Freshman Seminar Questionnaire

Thank you for completely and thoughtfully answering all of the following items in the next few minutes.

Your student ID#: _________________________ Your name: ____________________________________
Credit hours you took this semester: ___________ Your e-mail address: __________________________

1) Complete one of these sentences.
   A) “I changed my major from General Studies to ____________________________.”
   B) “Two majors I am now considering are: ____________________ & ____________________.”

2) In terms of the **strength of influence on you becoming a college student**, rate these individuals or groups from 0 (no influence) to 7 (most influence). Circle one number for each bulleted item.

- Immediate family (parents, siblings) None 1 2 3 4 5 6 7
- Extended family (grandparents, aunts & uncles, cousins) None 1 2 3 4 5 6 7
- High school peers None 1 2 3 4 5 6 7
- High school teacher(s) None 1 2 3 4 5 6 7
- High school guidance counselor None 1 2 3 4 5 6 7
- Community's expectations, (neighbors, employers, etc.) None 1 2 3 4 5 6 7
- Religious organization, clergy, religious literature, divine inspiration/direction None 1 2 3 4 5 6 7
- Yourself None 1 2 3 4 5 6 7
- Other (explain on next line) None 1 2 3 4 5 6 7
3) In terms of importance to you at the start of this semester, rate these purposes for a college education from 0 (no importance) to 7 (most importance) to express the purpose(s) you then had for your college education. Circle one number per bulleted item. 

"At the start of the semester, I wanted college to help me ...."

- "Develop the abilities of my mind and to be a better thinker."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Better understand the world, my culture and the cultures of others."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Solve problems and to learn from my life experiences."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Critically reflect on society and to change my world."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Gain specific work/task related skills to get a job."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Develop as a whole person (including morally/spiritually) so I can better determine values/priorities."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

4) In terms of importance to you today, rate these purposes for a college education from 0 (no importance) to 7 (most importance) to express your current purpose(s) for your college education. Circle one number per bulleted item.

"Today, I want college to help me ...."

- "Develop the abilities of my mind and to be a better thinker."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Better understand the world, my culture and the cultures of others."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Solve problems and to learn from my life experiences."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Critically reflect on society and to change my world."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Gain specific work/task related skills to get a job."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- "Develop as a whole person (including morally/spiritually) so I can better determine values/priorities."
  
<table>
<thead>
<tr>
<th>None</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>
5) Which one purpose for a college education (below) best describes your current top purpose for your college education? Check only one.

- I want my college experience to help me...
  - develop the abilities of my mind and to be a better thinker.
  - better understand the world, my culture and the cultures of others.
  - solve problems and to learn from my life experiences.
  - critically reflect on society and to change my world.
  - gain specific work/task related skills to get a job.
  - develop as a whole person (including morally/spiritually) so I can better determine values/priorities.

6) At the end of this semester, how strong is your degree of certainty about your one current top purpose for your college education? Circle one.

A. None  B. Weak  C. Moderate  D. Strong  E. Very strong

7) How strong is your current degree of certainty about why you are now a college student? Circle one.

A. None  B. Weak  C. Moderate  D. Strong  E. Very strong

8) The General Studies Freshman Seminar may have influenced your certainty about your original top purpose for your college education. Check one box per row to complete this sentence:

"As a result of this Seminar element, I am _______ my original top purpose."

<table>
<thead>
<tr>
<th>ELEMENT/ROW</th>
<th>Absolutely certain about</th>
<th>Very certain about</th>
<th>Moderately certain about</th>
<th>Less certain about</th>
<th>Uncertain about</th>
<th>Changing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of Education Component</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Community Service</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Major and Career Exploration</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Frankl’s “Man’s Search for Meaning”</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Social Equity</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Public Speaking</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Health and Wellness</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Student “Search for Meaning” Paper</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Interaction with Facilitator</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Interaction with Peer Leader</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Interaction with Seminar Classmates</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

9) Recall your General Studies Freshman Seminar course and report how important its total contribution has been to the formation of a current top purpose for your college education. Circle one.

A. Not important  B. A Little Important  C. Moderately Important  D. Important  E. Very Important
10) Your *college life in college experiences* may have influenced your certainty about your original top purpose for your college education: A) Circle "N" to indicate items that *do not apply* to your college/life experience, B) Circle "Y" to indicate items that *do apply* to your college/life experience and check one box per row to complete this sentence.

"As a result of this college/life experience, I am ________ my original top purpose."

<table>
<thead>
<tr>
<th>&quot;Y&quot; &amp; One Box and &quot;N&quot; &amp; No Box</th>
<th>Absolutely certain about</th>
<th>Very certain about</th>
<th>Moderately certain about</th>
<th>Less certain about</th>
<th>Uncertain about</th>
<th>Changing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Took written communication core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a verbal communication core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a mathematics core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a fine arts core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a humanities core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a natural science core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a social sciences core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Took a multicultural/global core</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a financial set-back</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Got a profession-related scholarship</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Got a non-career-related job</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Got a career-related job</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a political organization</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a religious organization</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a pre-professional org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a student social org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a student recreation org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a student service org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in an ethnic student org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a residence hall org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a commuter student org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in a Greek student org.</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a new academic mentor</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a new professional mentor</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a new romantic relationship</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a broken romantic relationship</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had an accident or illness</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Got engaged to marry</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Got married</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a child</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Got divorced</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Had a family/friend death or illness</td>
<td>Y N</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
APPENDIX C

HUMAN SUBJECT COMMITTEE DOCUMENTS
I agree that the research that you describe is exempt from the requirement that it be reviewed by the human subject committee.

Stephen Guggenheim
Chair, Human Subject Committee

Stephen J. Guggenheim, M.D.
WWAMI Medical Education Program
308 Leon Johnson Hall
Montana State University
Bozeman, MT 59717-3080
Subpart A—Federal Policy for the Protection of Human Subjects (Basic DHHS Policy for Protection of Human Research Subjects)
PART 46—PROTECTION OF HUMAN SUBJECTS

Subpart A—Federal Policy for the Protection of Human Subjects (Basic DHHS Policy for Protection of Human Research Subjects)


[SOURCE: 58 FR 28012, 28022, June 18, 1991, unless otherwise noted.]

§ 46.101 To what does this policy apply?

a. Except as provided in paragraph (b) of this section, this policy applies to all research involving human subjects conducted, supported or otherwise subject to regulation by any federal department or agency which takes appropriate administrative action to make the policy applicable to such research. This includes research conducted by federal civilian employees or military personnel, except that each department or agency head may adopt such procedural modifications as may be appropriate from an administrative standpoint. It also includes research conducted, supported, or otherwise subject to regulation by the federal government outside the United States.

1. Research that is conducted or supported by a federal department or agency, whether or not it is regulated as defined in §46.102(e), must comply with all sections of this policy.

2. Research that is neither conducted nor supported by a federal department or agency, but is subject to regulation as defined in §46.102(e) must be reviewed and approved, in compliance with §46.101, §46.102, and §46.107 through §46.117 of this policy, by an institutional review board (IRB) that operates in accordance with the pertinent requirements of this policy.

b. Unless otherwise required by department or agency heads, research activities, in which the only involvement of human subjects will be in one or more of the following categories, are exempt from this policy:

1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

3. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

4. Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

5. Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.

6. Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration, or approved by the Environmental Protection Agency, or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

C. Department or agency heads retain final judgment as to whether a particular activity is covered by this policy.
APPENDIX D

DECLARED MAJORS VERSUS MAJORS UNDER CONSIDERATION:

LISTING OF RESPONSES CONSIDERED SIMILAR
Declared Majors vs. Majors Under Consideration: Listing of Responses Considered Similar

<table>
<thead>
<tr>
<th>College</th>
<th>Declared Major</th>
<th>Responses considered similar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Arch</td>
<td>Architecture</td>
<td>Architecture</td>
</tr>
<tr>
<td></td>
<td>Art</td>
<td>Art, art history, design, graphic design, interior design, photo</td>
</tr>
<tr>
<td></td>
<td>Environmental Design</td>
<td>Architecture, graphic design</td>
</tr>
<tr>
<td></td>
<td>Media Theater Arts</td>
<td>Art, film, film literature, MTA, motion picture, music, photo, photography</td>
</tr>
<tr>
<td></td>
<td>Music Education</td>
<td>Music, music education</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Ag Business</td>
<td>Ag, agriculture, ag education, animal science, business</td>
</tr>
<tr>
<td></td>
<td>Biotechnology</td>
<td>Biology, biotechnology</td>
</tr>
<tr>
<td></td>
<td>Horticulture/Landscape Design</td>
<td>Design, environmental, forestry horticulture, landscape architecture, landscape design</td>
</tr>
<tr>
<td></td>
<td>Land Resources &amp; Environmental Sciences</td>
<td>Biological science, conservation, environmental science, fish &amp; wildlife, microbiology, wildlife biology</td>
</tr>
<tr>
<td>Business</td>
<td>Accounting</td>
<td>Accounting, business, business management</td>
</tr>
<tr>
<td></td>
<td>Business (General)</td>
<td>Accounting, business, business marketing, econ, finance, management, marketing, sales</td>
</tr>
<tr>
<td></td>
<td>Business Finance</td>
<td>Accounting, business, business administration, business marketing, finance</td>
</tr>
<tr>
<td></td>
<td>Business Management</td>
<td>Business, business communications, business management, management, marketing</td>
</tr>
<tr>
<td></td>
<td>Business Marketing</td>
<td>Business</td>
</tr>
<tr>
<td>Education, Health and Human Development</td>
<td>Biomechanics</td>
<td>Biomedicine, biology</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Child Development</td>
<td>Early child development</td>
<td></td>
</tr>
<tr>
<td>Community Health</td>
<td>Dental hygiene, medicine, nursing</td>
<td></td>
</tr>
<tr>
<td>Consumer Science</td>
<td>Consumer science</td>
<td></td>
</tr>
<tr>
<td>Elementary Education</td>
<td>Education, elementary education, special education, teaching</td>
<td></td>
</tr>
<tr>
<td>Exercise Science</td>
<td>Exercise physiology</td>
<td></td>
</tr>
<tr>
<td>Family Science</td>
<td>Community health, counseling, early childhood education, family science, health and human development</td>
<td></td>
</tr>
<tr>
<td>Health Enhancement</td>
<td>Education, exercise physiology, physical education</td>
<td></td>
</tr>
<tr>
<td>Health Promotion</td>
<td>Human development</td>
<td></td>
</tr>
<tr>
<td>Health &amp; Human Development</td>
<td>Medicine, nutrition, physical education</td>
<td></td>
</tr>
<tr>
<td>Pre-Physical Therapy</td>
<td>Exercise physiology, physical therapy</td>
<td></td>
</tr>
<tr>
<td>Secondary Education/Broadfield</td>
<td>Elementary education, geography</td>
<td></td>
</tr>
<tr>
<td>Technology Education</td>
<td>Ag education, computer science, electrical engineering, engineering, science</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>Civil engineering, engineering</td>
<td></td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Civil engineering, engineering</td>
<td></td>
</tr>
<tr>
<td>Construction Engineering Technology</td>
<td>Ag engineering, CET, civil engineering, engineering, environmental engineering</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>Computer science, technology</td>
<td></td>
</tr>
<tr>
<td>General Engineering</td>
<td>Computer science, construction engineering, mechanical engineering</td>
<td></td>
</tr>
<tr>
<td>Industrial &amp; Management Engineering</td>
<td>Engineering</td>
<td></td>
</tr>
<tr>
<td>Letters &amp; Science</td>
<td>Mechanical Engineering</td>
<td>Chemical engineering, civil engineering, computer science, electrical engineering, engineering, mechanical engineering</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Biology</td>
<td></td>
<td>Fish &amp; wildlife, pediatrics, pediatric sonogram, pre-med, pre-vet, science, ultrasound, veterinary medicine, wildlife biology</td>
</tr>
<tr>
<td>English</td>
<td></td>
<td>English, literature</td>
</tr>
<tr>
<td>Earth Science: Geology/Geography</td>
<td></td>
<td>Geography, geology</td>
</tr>
<tr>
<td>History</td>
<td></td>
<td>History</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>Math, secondary education-math</td>
</tr>
<tr>
<td>Microbiology</td>
<td></td>
<td>Biology, biomedical science, environmental health, microbiology</td>
</tr>
<tr>
<td>Modern Language/Commerce</td>
<td></td>
<td>Accounting, business</td>
</tr>
<tr>
<td>Philosophy</td>
<td></td>
<td>Philosophy, religion</td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>Earth science, engineering</td>
</tr>
<tr>
<td>Political Science</td>
<td></td>
<td>Political science</td>
</tr>
<tr>
<td>Psychology</td>
<td></td>
<td>Psychology</td>
</tr>
<tr>
<td>Sociology: Anthropology/Justice Studies/Sociology</td>
<td></td>
<td>Anthropology, criminal justice, justice studies, law enforcement, sociology</td>
</tr>
<tr>
<td>Nursing</td>
<td></td>
<td>Biomedical science, medicine, nursing, occupational therapy, physical therapy, pre-medicine</td>
</tr>
</tbody>
</table>