



This is to certify that the dissertation entitled

STUDENTS' PERSPECTIVES ON THE UNDERGRADUATE EDUCATION IN THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY

presented by

Krishna Mohan Shrestha

has been accepted towards fulfillment of the requirements for the

Doctoral

degree in

Community, Agriculture, **Recreation and Resource** Studies

Major Professor's Signature July 27, 2007

Date

MSU is an Affirmative Action/Equal Opportunity Employer

PLACE IN RETURN BOX to remove this checkout from your record. TO AVOID FINES return on or before date due. MAY BE RECALLED with earlier due date if requested.

DATE DUE	DATE DUE	DATE DUE
L	5/08 K:/F	Proj/Acc&Pres/CIRC/DateDue indo

STUDENTS' PERSPECTIVES ON THE UNDERGRADUATE EDUCATION IN THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY

By

Krishna Mohan Shrestha

A DISSERTATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

.

Community, Agriculture, Recreation and Resource Studies

ABSTRACT

STUDENTS' PERSPECTIVES ON THE UNDERGRADUATE EDUCATION IN THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY

By

Krishna Mohan Shrestha

The general purpose of this study was to assess students' perspectives on the undergraduate education in the College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU). The study population was undergraduate students in the CANR at MSU from 2004 to 2008. This study utilized mixed methods: online surveys and focus group interviews.

This dissertation is a compilation of four individual papers (Chapter Two to Chapter Five). Findings of the first paper revealed that a high majority of the respondents were White-Caucasians females from suburban or urban communities, and residents of the state of Michigan. The transfer students from other universities/colleges and from within the MSU accounted for nearly two-thirds (63.8%) of the CANR students. Family and friends were the most influential sources of information, followed by university/college websites and printed materials used by respondents to learn about the CANR programs. Academic program/curriculum, reputation of the College, and opportunity for internships were the top three important factors influencing students' decision to enter the CANR programs. Other important factors influencing respondents decision to enter CANR majors were academic advising; recommendations of friends, alumni, and family members; and opportunity for study abroad. Findings of the second paper showed a weekly time use profile of students in various academic and extracurricular activities as follows: preparing for class (15.2 hours), working on-campus (13.5 hours), working off-campus (16.9 hours), participating in co-curricular activities (6.1 hours), relaxing and socializing (16.2 hours), providing care for dependents (11.6 hours), and commuting to class (5.0 hours). The results showed that respondents spent more time working and socializing than preparing for class.

Findings of the third paper indicated that respondents felt that most required courses were offered every year, courses were taught by experienced faculty members who were approachable and accessible outside of classrooms, and academic advising was highly satisfactory. Study results indicated that the curricula in the CANR are not very highly internationalized.

Findings of the fourth paper showed that the Dean's Office provided such services as study abroad information and scholarships, undergraduate research grants, career advising services, and administrative support to change and/or declare academic majors. Results indicated that the majority of participants were satisfied with the assistance they received from both the Dean's Office and the academic departments/schools. With regard to employable skills, the majority of participants spoke highly about the technical skills and competencies they developed through hands-on learning activities. But only a few participants indicated that they had developed diversity skills, computer technology and database skills, research skills, business skills, and leadership skills. Therefore, the CANR program should be geared towards developing these employable skills in students.

DEDICATION

Dedicated to my late grandparents: Buddhi Man Shrestha and Ratna Kumari Shrestha.

ACKNOWLEDGEMENTS

I would like to extend my sincere thanks to my major advisor, Dr. Murari Suvedi, who has been instrumental in accomplishing my graduate studies at Michigan State University. I would also like to thank to my advisory committee members, Dr. Rick Paulsen, Dr. Linda Kalof, Dr. Kelley Millenbah, and Dr. Eunice Foster, for their valuable suggestions to improve my dissertation papers. I am indebted to Dr. Eunice Foster, Associate Dean for Academic Programs in the College of Agriculture and Natural Resources at Michigan State University, for providing me Graduate Assistantships and Summer Retention Fellowships.

I would like to express my deepest love to my wife Kalpana Shrestha and children: Ashish Shrestha, Amrit Shrestha, and Anuj Shrestha, for their moral support during my entire doctoral study period. It would have been very difficult for me to complete my doctoral degree without my family's support. I also truly appreciate my elderly parents' dedication and blessings for my advanced degree.

A number of friends and families have been a great help during the research and writing phase of my dissertation. I extend my sincere thanks to Dr. Dan Hudson for helping me conduct focus group interviews by taking notes. My family received a great support from Dr. Dan Hudson and his family during my difficult time at Michigan State University.

Thanks are due to Dr. Raju Tamot, for his support in making an IRB application for my dissertation research, and Evan Like, Kristina Quynn, and Benjamin Bryant for their editorial help in my dissertation. I would also like to extend my sincere thanks to

v

my graduate colleagues Rohit Jindal, Mamta Vardhan, Taylor Reid, Eric Bailey, John Coombs, Luis Flores, and Eunseong Jeong for their continuous moral and intellectual support.

Last but not least, I would like to thank Dr. Robert M. Gonyea, Associate Director, Indiana University Center for Postsecondary Research, for sharing the findings of time use data for the 2008 NSSE Survey.

TABLE OF CONTENTS

LIST OF TABLES	x
CHAPTER I	
INTRODUCTION	1
Problem Statement	1
Research Objectives	5
Methodology	5
i. Online survey	6
ii. Focus group interview	
Definition of Terms	
Organization of the Dissertation	
Limitations of the Study	
REFERENCES	
CHAPTER II	
WHO ARE THE STUDENTS OF THE COLLEGE OF AGRICULTURE A	ND
NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY?	
Introduction	
Objectives	
Methodology	
Results and Discussions	
Demographic characteristics of respondents	
Sources of students in the CANR	
Sources of information used by the respondents	
Factors in deciding the CANR majors	43
Conclusions and Recommendations	
REFERENCES	58
CHAPTER III	62
UNDERGRADUATE STUDENTS' USE OF TIME IN THE COLLEGE OF	7
AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE	3
UNIVERSITY	62
Introduction	62
Objectives	63
Methodology	64
Results and Discussions	66
Description of the respondents	66
Use of time by respondents	67
Comparison of time use between the CANR and NSSE study	
Time use and demographic characteristics	75
Conclusions and Recommendations	88
REFERENCES	

CHAPTER IV	96
STUDENTS' PERCEPTIONS ABOUT ACADEMIC PROGRAMS IN THE COLLI	EGE
OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE	
UNIVERSITY	96
Introduction	96
Objectives	101
Methodology	101
Results and Discussions	104
Description of respondents	104
Perceptions about academic advising	108
Internationalization of the CANR curricula	113
Demographic profile of study abroad participants in the CANR	118
Strengths of the CANR programs	124
Weaknesses of the CANR programs	128
Suggestions to improve the CANR programs	. 136
Conclusions and Recommendations	. 143
REFERENCES	148
CHAPTER V	155
WHAT GRADUATING SENIORS SAY ABOUT THEIR COLLEGE EXPERIENC	'E
A CASESTUDY OF THE COLLEGE OF AGRICULTURE AND NATURAL	2.
RESOURCES AT MICHIGAN STATE UNIVERSITY	155
Introduction	155
Objectives	157
Methodology	158
i Online survey	158
i. Focus group interview	150
Perults and Discussions	163
Apline survey results	16/
Chematoriation of online survey negticinents	164
Demonstrations of services or assistance provided by the CAND Dem's Office	164
Demonstring of departmental corrigion	167
Contribution of academic major to development of skills	. 107
Equip group integricul acquite	. 174
Focus group interview results	. 174
Characteristics of focus group participants	. 174
Perceptions of services or assistance provided by the CANK Dean's Office	173
Suggestions to improve services provided by the CANR Dean's Office	177
Perceptions of departmental services	. 181
Contributions of academic major to development of skills	. 193
Conclusions and Recommendations	209
REFERENCES	215
CHAPIEK VI	222
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	. 222
Summary of Findings	225
Conclusions and Recommendations	. 232

APPENDICES	237
Appendix A. Current Student Survey Instrument	237
Appendix B. Senior Exit Survey Instrument	244
Appendix C. Sample Invitation Letter to Focus Group Participants	249
Appendix D. Script for Conducting the Focus Group Interview	250
Appendix E. Trend of Fall Enrollment in the College of Agriculture and Nati	ural
Resources at Michigan State University (Fall 1994-Fall 2008)	253
Appendix F. Literature Review: Influential Factors and Sources of Information	on for
Choosing Agriculture College Major	254
Appendix G. Literature Review: Influential Factors for Choosing Agriculture	College
Major	256
Appendix H. Ranking of Factors Deciding the CANR Major for FFA/4-H	
Respondents	257
Appendix I. Results of Post Hoc (Tukey) Test for Multiple Comparisons by	
Academic Levels of Respondents	258
Appendix J. Difference between Participants and Non-Participants of 4-H/FF	A for
Time Use on Various Activities (hours/week)	260
Appendix K. Difference between Members and Non-Members of National H	lonor
Society for Time Use on Various Activities (hours/week)	261
Appendix L. Demographic Characteristics of Current Students	262
Appendix M. Perceptions about Major Courses and Faculty Help by Selected	1
Demographic Characteristics of Respondents	264
Appendix N. Perceptions about Major Courses and Faculty Help by Academ	ic Status
and Residency of Respondents	265
Appendix O. Perceptions about Academic Advising by Selected Demograph	ic
Characteristics of Respondents	266
Appendix P. Perceptions about Academic Advising by Selected Demographi	c
Characteristics of Respondents (continued)	267
Appendix Q. Chi-square Test for Association between Selected Demographic	C
Characteristics and Courses taken at MSU Focusing on International Issues	268
Appendix R. Chi-square Test for Association between Respondents' Academ	nic
Status and Frequency of International Issues and/or Case Studies Shared by F	aculty
Member in the Classrooms	269
Appendix S. Chi-square Test for Association between Selected Demographic	:
Characteristics and Involvement in International Research/Outreach Project	270
Appendix T. Chi-square Test for Association between Selected Demographic	;
Characteristics and Participation in Study Abroad	271
Appendix U. Recommendations to Improve CANR Programs by	
Departments/Schools	272
Appendix V. Literature Review: Employers' Ratings of Important Employab	le
Skills/Characteristics	273
Appendix W. Literature Review: Alumni Ratings of Important Employable	
Skills/Unaracteristics	275
Appendix A. Demographic Unaracteristics of Graduating Seniors	
Appendix 1. Frimary Major of Respondents (Spring 2004-Spring 2008)	2/8

LIST OF TABLES

Table 1. Demographic characteristics of respondents 28
Table 2. Demographic characteristics of respondents (continued)
Table 3. Respondents' primary majors in the CANR 32
Table 4. Respondents' entrance to the CANR programs 34
Table 5. Respondents' entrance to the CANR programs by major
Table 6. Sources of information used by respondents to learn about the CANR majors 40
Table 7. Factors in deciding the CANR majors 45
Table 8. Respondents' weekly time use by survey year (hours/week)
Table 9. Time use in the CANR study at MSU and the NSSE 2008 study
Table 10. Time use (hour/week) by academic level of respondents in the CANR
Table 11. Time use (hours/week) by gender of respondents 81
Table 12. Time use (hours/week) by ethnicity of respondents 83
Table 13. Time use (hours/week) by residence types of respondents
Table 14. Respondents' perceptions of course offering and faculty help 106
Table 15. Respondents' perceptions of academic advising
Table 16. Internationalization of the CANR curricula
Table 17. Profile of study abroad participants in the CANR 120
Table 18. Strengths of the CANR programs 124
Table 19. Weaknesses of the CANR programs 129
Table 20. Suggestions to improve the CANR programs
Table 21. Perceptions of College services 166

Table 22.	Perceptions of departmental services	169
Table 23.	Perceptions of departmental services (continued)	171
Table 24.	Development of employable skills	173
Table 25.	Support and services available in academic departments/schools	182
Table 26.	Skills developed by students in the CANR	193

CHAPTER I

INTRODUCTION

Problem Statement

Colleges of Agriculture in higher education institutions in the United States are challenged by several factors, most importantly changes in agriculture and food systems, changing student demography, declining federal and state financial support, increasing tuition and college education costs, and the globalization of the economy.

American agriculture went through tremendous transformation following World War II. Farm mechanization, increased availability of chemical inputs, and advances in plant and animal breeding enhanced growth in agricultural productivity of the U.S. farms (Dimitri et al., 2005). Contemporary American agriculture is characterized by a small number of big, mechanized, and specialized farms concentrated in rural areas. Along with the changes in agricultural systems came changes in consumer preferences for agricultural products. More and more people became food and health literate which dictated production of certain agricultural produce (Gilmore et al., 2006). These changes in agriculture and food systems have both posed challenges and offered opportunities to colleges of agriculture to reform their academic programs.

Another challenge to agriculture academic programs involves demographic changes in the composition of college students. Findings of the Higher Education Research Institute (2007) indicate that the entering full-time freshmen Asian American students' population has nearly doubled each decade increasing from 0.6% in 1971 to 8.6% in 2006. The growth in the Hispanic student population is very similar to that of the Asian American students. In addition, the number of baccalaureate degree recipients

of Hispanic graduates has recently surpassed the number of African-American and Asian or Pacific Islanders (Gilmore et al., 2006).

Additionally, from 1966 to 2006 there has been a shift in the gender composition of college freshmen towards more female representation (55%) (Higher Education Research Institute, 2007). According to the National Center for Educational Statistics (2005), women have increasingly represented the majority of undergraduates, from 52 percent in 1980 to 56% in 2001 (Peter and Horn, 2005). Women also surpassed men in the number of awards received in associate's and bachelor's degrees over the same period.

Traditionally, students in colleges of agriculture were from farm or rural backgrounds. But some studies have indicated that more agriculture freshmen are coming from urban backgrounds with no prior experience or knowledge in agriculture (Dyer et al., 1999; Dyer et al., 1996; Scofield, 1995). Russel (1993) argues that the lack of agricultural background could jeopardize the long-term future of the agricultural industry.

Shrinking federal and state funding has consequently compelled public universities to raise tuition, which has a direct impact on student enrollment, especially the low income student population. According to McPherson and Shulenburger (2008), over the last 20 years, real per student state spending to support public higher education has declined, forcing universities to increase tuition to offset dwindling state support. The increase in tuition has raised the issues of access to and affordability of higher education, particularly for minority students. Access to and affordability of higher education is primarily associated with increasing college tuition and fees on the one hand,

and declining state financial support to higher education on the other hand (Rosenstone, 2004). Increased tuition and fees have a direct impact on college enrollments among students of lower income in their first college choice. According to the American Freshman Survey (2006), nearly one-third of college freshmen did not attend their top choice of schools for financial reasons (Higher Education Research Institute, 2007).

The technological revolution in communication and information technology, especially the internet, has made knowledge highly portable (Carnoy, 2005). How does globalization affect higher education? It has a profound impact on higher education, especially the colleges of agriculture in land-grant universities because global markets are increasingly important to U.S. farmers. Land-grant institutions have the responsibility of creating and disseminating knowledge and transforming lives of not only U.S. citizens but also the global society because effects of globalization transcend national boundaries (Hudzik, 2004). To enhance the global competitiveness of U.S. agriculture through human resource development, the National Association of State Universities and Land-Grant Colleges (NASULGC) has urged institutions to globalize undergraduate and graduate curricula, provide leadership development in a global context, encourage pursuit of related scholarly objectives and knowledge creation, and create cross-cultural competency and understanding (NASULGC, 1997). Recognizing the roles of its institutions in the context of globalization, NASULGC developed a vision statement and action plan for internationalizing the universities in 2000. "Internationalization of curriculum" was one of the seven goals of the vision statement and action plan suggested by NASULGC to its member institutions when internationalizing their universities and

campuses. In 2004, NASULGC stated, "internationalization helps them [students] to develop the global critical thinking essential to contributing as citizens of the world and competing in the international marketplace" (NASULGC, Executive Summary, page viii), as one of the four good reasons to internationalize university in a call for leadership (NASULGC, 2004).

In the changing context of U.S. agriculture and food systems, demography of student population, shrinking financial support from government, increasing tuition and college education costs, and globalization of economy, it is imperative that an institution assess its academic programs by getting feedback from its students. Thus, this study investigates how the College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU) is meeting the educational needs of its students by addressing the following research questions:

- 1. Who are the undergraduate students in the College of Agriculture and Natural Resources? What are their demographic characteristics?
- 2. What motivated students join the CANR program?
- 3. What is the weekly time use profile of students in various academic and extracurricular activities?
- 4. How do students perceive course offerings, academic advising, and internationalization of curricula in the CANR?
- 5. What do graduating seniors say about their college experience?

Research Objectives

The general objective of this study is to analyze and describe the perspectives of undergraduate students regarding their experiences in the CANR at MSU. The specific objectives are to:

- describe the demographic profile of students, identify how they learn about the CANR majors, and what made them enter the CANR programs.
- determine students' weekly time use in various academic and extracurricular activities.
- 3. assess students' perceptions about course offerings, academic advising, and internationalization of curricula in the CANR.
- 4. describe graduating seniors' perceptions about college and departmental services and employability upon graduation.
- 5. analyze students' comments about strengths and weaknesses of the undergraduate programs within the CANR and solicit their suggestions to improve the undergraduate education.

Methodology

This study utilized mix-methods for data collection. Online surveys were used to collect quantitative data from undergraduate students between 2004 and 2008. Focus group interviews were conducted to solicit opinions and feedback from the CANR graduating seniors of 2008. The methods and procedures followed are described below:

i. Online survey

Two online surveys—one for the current undergraduate students and another for the graduating seniors only—were conducted between 2004 and 2008. The current undergraduate students included all students except graduating seniors. The survey instruments were developed by Dr. Murari Suvedi, Professor in the Department of Community, Agriculture, Recreation, and Resource Studies (CARRS) at MSU and Dr. Eunice Foster, Associate Dean for the Undergraduate Program in the College of Agriculture and Natural Resources at MSU. The instrument was developed after a careful review of literature on students' assessment of undergraduate programs. The draft instrument was shared with the CANR assessment committee members, undergraduate advisors, and coordinators to ensure the face and content validity. The final survey instrument was prepared by incorporating the comments and suggestions received from CANR assessment committee members, undergraduate advisors, and coordinators.

The online survey instrument for the current student had five parts (Appendix A). Part A was designed to solicit students' academic information: academic status, primary major, dual major, second degree; entrance to CANR, sources of information used to learn about the college majors in CANR, and important factors that contributed to the decision to enter their current CANR majors. Part B was aimed at getting feedback on major courses, faculty, academic advising, and internationalization of CANR curricula. Part C was designed to measure students' time use, the approximate hours spent per week on various activities. Part D sought students' demographic information. Part E was

intended to get some additional comments through open-ended questions on strengths, weaknesses, and recommendations.

Similarly, the survey instrument for the graduating seniors had four parts (Appendix B). Part A sought students' academic information. Part B assessed college and departmental services, academic preparation, and skills development. Part C sought students' demographic information, and Part D contained three open-ended questions on strengths, and weaknesses of the undergraduate programs and recommendations to enhance programs. The reliability of each scale in both online surveys was established using Chronbach's alpha procedure.

The electronic mail addresses of the current undergraduate students and the graduating seniors were obtained from the Office of the Dean in the CANR. Online webbased surveys were created and administered by the Center for Evaluative Studies in the Department of Community, Agriculture, Recreation, and Resource Studies (CARRS) at MSU. Online surveys were sent to all the current and graduating senior undergraduate students through e-mail in a personalized "cover letter" along with the web-address or hyperlink of the survey. Students were asked to "click" on the hyperlink in the e-mail text to display or access the web-based survey. Once the student completed the survey and hit the "submit" button, data were automatically collected in web-based database. The survey of the current undergraduate students was administered once a year during March and April from 2004 to 2008. The graduating seniors' surveys were administered fall and spring semester (i.e. twice a year) when the senior students applied for graduation.

The response rate for the current undergraduate student survey varied from 9.5% to 34.4%. The response rates were 30.8%, 9.5%, 25.4%, 22.2%, and 34.4% in 2004, 2005, 2006, 2007, and 2008, respectively. The overall response rates for the five-year study was 24.5%. For the graduating senior survey, response rates varied from 22.6% to 44.4%. Response rates were 44.4%, 31.3%, 23.9%, 22.6%, and 41.0% for each academic year from 2003-04, 2004-05, 2005-06, 2006-07, and 2007-08 respectively. The overall response rate for the graduating senior surveys for five-year study was 32.6%.

To increase the survey response rate, participants were informed in the e-mail cover letter that a free two-scoop ice-cream coupon would be provided, as a token of appreciation, to each participant who completed the survey. Survey participants were informed to pick up a coupon from the MSU Dairy store located in Anthony Hall. Additionally, survey reminders were sent after one week and again a week before the icecream event to enhance the survey response rate.

The data analysis was done using the Statistical Package for Social Science (SPSS 15) for Windows. Data were analyzed using descriptive statistics (frequency, mean and standard deviation), test of difference, and test of association. The detailed method of data analysis is described in each paper.

ii. Focus group interview

This study also used focus group approach to collect data from the graduating seniors. The primary purpose of the focus group interview was the need for exploring indepth information on the perspectives of graduating seniors about their academic experiences in the CANR. Various authors (Alreck and Settle, 2004; Larson et al., 2004; Krueger and Casey, 2000) suggest that focus groups be conducted with a clear plan in a

carefully designed and controlled process and environment. In this study, focus groups were conducted by adopting the following procedure:

An easily accessible focus group venue was reserved. Participants were identified with the help of the Associate Dean and Coordinator of the Undergraduate Program, by contacting the undergraduate advisors and coordinators in each academic department and/or school within the CANR. Upon receiving the list of potential participants from their respective advisors, the researcher sent e-mail letters inviting them to participate in focus group interviews (Appendix C). Twenty-three participants, representing both gender and students of color, were selected for three focus group sessions.

A focus group discussion guide (interview protocol) was developed to help moderator lead the discussions (Appendix D). A short and clear script helped moderator keep discussion on track, and finish the interview within the stipulated time. The script also contained some ground rules which helped moderator control environment and keep the discussion on track.

The researcher moderated the focus group interview sessions by following the discussion guide or interview protocol. One assistant moderator helped the principal moderator by taking notes. All three focus group discussions were audio-taped to transcribe and analyze the data later.

Focus group interviews demand several logistical managements such as a meeting room equipped with necessary audio and visual aids, light, room temperature, space, arrangement of tables and chairs, stationary (writing pad, pencils, name cards), refreshments, and incentives to participants. Since interview sessions were organized for an hour, participants were provided drinks and pizza in the beginning. At the end of

focus groups, each participant received \$20.00 in cash as an incentive to compensate travel expenses and time.

Analysis of the data started with reviewing notes and transcribing audio tapes. A debriefing session with an assistant moderator was scheduled immediately after the focus group interview. The audio tapes were transcribed verbatim and key themes were identified that emerged from the discussions for each session. Opinions and ideas were compared and contrasted between the focus groups. A few quotations were used to illustrate the key points as appropriate.

Definition of Terms

The researcher has defined the following terms for the purpose and context of this research as:

Academic advising

Any advice or guidance provided by an instructor or faculty member to his or her advisee through formal or informal interaction to help accomplish an academic goal in his or her major.

Assessment

Erwin (1991) has defined assessment as "...the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development." (Erwin, 1991, p. 15)

College services

Assistance provided to students by the College of Agriculture and Natural Resources at Michigan State University.

Departmental/School services

Departmental/School services refer to the services provided to students through faculty, departmental chairs, and secretaries to facilitate students' learning goals in their majors.

Graduating senior

Student who has successfully completed his or her academic program and filed for the graduation; he or she might be still on campus or may have left campus already.

Internationalization of curricula

The extent to which the content of the curricula includes international issues in agriculture and natural resources or any research and educational program such as study abroad program in the CANR.

Skills

Competencies related to academic program goals developed by students by going through the experiential learning process.

Sources of information

Any means or media that will help students to be aware of the program.

Time use

Students' allocation of time or amount of time (hours per week) spent in various activities, such as class preparation, work, extracurricular activities, providing care for dependents, and commuting to class.

Traditional and Non-traditional students

Students from 18 to 24 years old were considered traditional undergraduate students, and those 25 years and older were regarded as non-traditional.

Organization of the Dissertation

This dissertation is composed of six chapters. The first chapter is an introduction to the dissertation. It introduces the subject matter and sets the stage for the issues covered in this study. It defines the research problem, including research questions, study objectives, methodologies, and definition of terms.

The second chapter is the first individual paper entitled "Who are the Students of the College of Agriculture and Natural Resources at Michigan State University?" The general objective of this paper is to document the comprehensive demographic profile of students and identify the reasons for their decision to join the CANR programs. Specifically, the paper attempts to identify and analyze where students came from to the CANR and how they learned about its programs. Study findings are discussed with implications for recruitment and recommendations are made. Findings may be helpful to the college administrators and recruiting officers who plan strategies for recruiting high quality students.

The third chapter is the second paper on "Undergraduate Students' Use of Time in the College of Agriculture and Natural Resources at Michigan State University". This paper attempts to investigate weekly time use profiles and their relationships with selected demographic characteristics of students. Findings may be useful to college administrators, academic advisors, and parents to help students effectively manage their time.

The fourth chapter is the third paper on "Students' Perceptions about Academic Programs in the College of Agriculture and Natural Resources at Michigan State University". This paper focuses on how students perceive courses in their major, academic advising services they received, and internationalization of curricula in the CANR. The students' feedback on courses, academic advising, and internationalization of curricula may help faculty members, academic advisors, and college administrators improve the program.

The fifth chapter is the fourth and the final paper entitled "What Graduating Seniors Say About Their College Experiences: A Case Study of the College of Agriculture and Natural Resources at Michigan State University". This study utilized three focus group interviews of 23 graduating seniors to solicit information about their overall experiences regarding college services, departmental services, and contribution of their academic program towards development of employable skills. Feedback from the graduating seniors may be useful to identify strengths and weaknesses of the program and helpful to improve services, course curricula, and the overall program within the CANR.

The final chapter presents the summary, conclusions and recommendations of this study.

Limitations of the Study

This study did not follow any sampling method. Online surveys were sent to all the current undergraduate students and the graduating seniors. Respondents were selfselected, and thus, not a random sample. However, the final respondents were compared with the total population, and they resembled the population well. Another limitation of this study could be multiple participation of the survey respondents in different academic

years because online surveys were sent to all the current students who were registered in that semester. For example, participant 'X' might have participated in online survey in more than one academic year. Thus, there could be repetition of the views from the same respondent in the study.

In Chapter II, participants were asked to report the approximate number of hours they spent on various activities. The time respondents indicated was self-reported time based on their memory recall. Thus, the time use indicated by the respondents in various activities may differ to some extent if the same participants were requested to record time using daily time diary method.

With regard to survey participants, there was more participation from certain academic majors, such as Animal Science, Packaging, and Construction Management including others. There could be variability in terms of departmental services, such as academic advising, provided to students within different academic majors. Thus, responses from the participants of these large departments may not necessarily represent the departmental services offered by the other smaller departments within the CANR.

REFERENCES

- Alreck, P. L. & Settle, R. B. (2004). *The Survey Research Handbook*, New York: McGraw-Hill/Irwin.
- Carnoy, M. (2005). *Globalization, education trends and the open society*. Paper presented at Conference on Education and Open Society: A Critical Look at New Perspectives and Demands, Budapest, Hungary.
- Dimitri, C., Effland, A. & Conklin, N. (2005). The 20th Century Transformation of U.S. Agriculture and Farm Policy. Economic Information Bulletin Number 3. United States Department of Agriculture (USDA). Retrieved January 10, 2009, from http://www.ers.usda.gov/publications/EIB3/eib3.pdf.
- Dyer, J. E., Breja, L. M. & Andreasen, R. J. (1999). Attitudes of College of Agriculture Freshmen Toward Agriculture. *Journal of Agricultural Education* 40(2): 1-10.
- Dyer, J. E., Lacey, R. & Osborne, E. W. (1996). Attitudes of University of Illinois College of Agriculture freshmen toward agriculture. *Journal of Agricultural Education 37*(3): 33-42.
- Erwin, T. D. (1991). Assessing student learning and development, San Francisco: Jossey-Bass.
- Gilmore, J. L., Goecker, A. D., Smith, E. & Smith, P. G. (2006). Shifts in the Production and Employment of Baccalaureate Degree Graduates from U.S. Colleges of Agriculture and Natural Resources: 1990-2005. Paper presented at A Leadership Summit to Effect Change in Teaching and Learning, Washington, DC.
- Higher Education Research Institute (2007). The American Freshman National Norms for Fall 2006. Higher Education Research Institute, University of California, Los Angeles.
- Hudzik, J. (2004). Why Internationalize NASULGC Institutions: Challenge and Opportunity. A background paper for "A Call to Leadership: The Presidential Role in Internationalizing the University". The National Association of State Universities and Land-Grant Colleges (NASULGC).
- Krueger, R. A. & Casey, M. A. (2000). Focus Groups: A Practical Guide for Applied Research, Thousand Oaks, California: Sage Publications Inc.

- Larson, K., Grudens-Schuck, N. & Allen, B. L. (2004). Can You Call It a Focus Group? Methodology Brief. Iowa State University Extension. Retrieved February 22, 2008 Iowa State University Extension, from http://www.extension.iastate.edu/publications/pm1969a.pdf.
- McPherson, P. & Shulenburger, D. (2008). University Tuition, Consumer Choice and College Affordability. Strategies for Addressing a Higher Education Affordability Challenge. National Association of State Universities and Land-Grant Colleges.
- NASULGC (1997). Globalizing Agricultural Science and Education Programs for America. National Association of State Universities and Land Grant Colleges, Washington, DC.
- NASULGC (2004). A Call to Leadership: The Presidential Role in Internationalizing the University. National Association of State Universities and Land Grant Colleges (NASULGC).
- Peter, K. & Horn, L. (2005). Gender Differences in Participation and Completion of Undergraduate Education and How They Have Changed Over Time. (NCES 2005-169). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Rosenstone, S. J. (2004). Challenges Facing Higher Education in America: Lessons and Opportunities. Paper presented at Paper presented to the University of Toronto Conference on Taking Public Universities Seriously, Toronto.
- Russell, E. B. (1993). Attracting Youth to Agriculture: How Colleges of Agriculture Can Expand Their Role. *Journal of Extension [Online] 31*(4).
- Scofield, G. G. (1995). College of Agriculture New Student Profile. Paper presented at the Central Region 49th Annual Research Conference, St. Louis, MO.

CHAPTER II

WHO ARE THE STUDENTS OF THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY?

Introduction

Colleges of Agriculture have been facing a serious challenge of unstable student enrollment during the last 20 years (Robinson et al., 2007; Dyer et al., 1996). As a result of the farm crisis in the United States in the late 1970s and early 1980s, the enrollment in colleges of agriculture dipped significantly in the late 1980s (Peiter et al., 2004; Dyer et al., 2002; Dyer et al., 1999). Enrollment in agricultural colleges in Land Grant Universities declined by 24% from 1978-1988, whereas it decreased by 13% in non-land grant programs over the same period (Manderscheid, 1988). To respond to the national crisis of declining agricultural enrollment, curricula were modernized as suggested by the National Research Council in 1988; as a result, the enrollment rebounded at agricultural colleges and high schools in the early 1990s. According to United States Department of Education, 1992 enrollments in colleges of agriculture increased by 18.9% over the 1981 enrollment nationwide (United States Department of Education, 1996).

The number of agronomy or crop science degree recipients fell from 764 in 1984-85 to 523 in 2002-03 (McCallister et al., 2005). According to a recent national survey of all the 1862 Land Grant Universities, the undergraduate enrollment in all Crop and Soil Science related majors averaged 90 students per university (Hansen et al., 2007). Similarly, the average undergraduate enrollment for Agricultural Economics decreased by 17% from academic year 1984-85 to 1995-96 (Blank, 1998). The College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU) faced a challenge of declining undergraduate enrollment from 1994 to mid 2000. The trend of fall enrollment for the undergraduate program in the CANR at MSU indicated that the average percentage change was negative (-0.5%) for a decade, from fall 1994 to fall 2004 (Appendix E). The undergraduate enrollment in the CANR at MSU increased significantly in fall 2005 and it has been positive and encouraging to date. The increase in enrollment in the CANR at MSU was largely the result of administrative changes. For example, the Dietetics major, which used to fall under the College of Human Ecology, was annexed to the CANR. In fall 2005, the enrollment in the Dietetics major increased by 688.9% over the fall 2004 enrollment (Michigan State University, 2009). However, the fall enrollment data for other several agriculture majors within the CANR at MSU indicate that the undergraduate enrollment trend is not stable.

The demographic composition of today's college of agriculture students has changed in several respects from that of the 1980s (Peiter et al., 2004; Scofield, 1995). Dyer et al. (1996) reported that 66.4% of freshmen in the College of Agriculture at the University of Illinois at Urbana-Champaign were from urban backgrounds. Dyer et al. (1999) reported that the majority of students that were from rural or farm backgrounds at the Iowa State University College of Agriculture has been replaced by freshmen from urban backgrounds who have no knowledge of, or prior experience in, agriculture. National statistics on undergraduate enrollment show that the demography has shifted for ethnic minorities and gender, as well. Enrollment of ethnic minorities is increasing. Female students have surpassed their male peers in college enrollment (United States Department of Education, 2007). The USDE's projections of educational statistics

between 2005 and 2016 indicate that the increase in female enrollment will be 22% (12.2 million) as compared to 10% (6.2 million) of male students in degree granting institutions. Similarly, enrollment is projected to increase for ethnic minorities, with a 45% change expected for Hispanic students, a 34% change expected for American Indians or Alaska Natives, and a 32% change expected for students who are Asian or Pacific Islanders. Enrollment is expected to increase 29% and 8% for African American and Caucasian students, respectively, between 2005 and 2016 (United States Department of Education, 2007).

In today's changing context of an ailing U.S. economy, shrinking federal and state support to higher education, rising costs of college education, and changing student demography have posed challenges to the colleges of agriculture to seek innovative ways to appeal to prospective students. It is more critical than ever before that the colleges of agriculture employ effective recruitment methods to attract the best and brightest students. In this endeavor, there is a lack of reliable information about the students' characteristics, sources of information they use, and other important factors that influence their decision to enroll in the CANR at MSU. A study is needed to fill the aforementioned information gap. Therefore, this paper is aimed at understanding the demographic profile of the undergraduate students in the CANR at MSU, identifying the routes by which they entered into the college programs, identifying the sources of information used to learn about college programs, and identifying the factors that influenced their decision to choose college majors within the CANR at MSU. Findings from this study may help college administrators and recruiting officers devise more effective strategies to recruit high quality students and enhance college enrollment.

Literature on students' college enrollment decisions and selection of college majors indicate that students are influenced by a myriad of diverse factors. This study adapted the Chapman's model of student college choice as the theoretical basis. Chapman suggested that college choice decision is influenced by the combination of two broad factors: i) student's characteristics, and ii) external factors, which include the influence of significant persons, college characteristics, and college efforts to communicate with prospective students (Chapman, 1981). Chapman concluded that the choice of which college to attend is first influenced by the background characteristics of the student and student's family. Second, a series of other external influences, such as the cost of attending the college, availability of financial aid, availability of student's choice of academic major, geographical location of an institution, and the communication efforts of an institution play a vital role in the students' college choice process. Chapman suggests that these multiple influencing factors be considered by the college administrators while charting student recruitment strategies.

A review of literature was conducted to understand the latest trends about sources of information and important factors influencing prospective students' choice of college of agriculture. A summary of selected literature review of factors influencing students' college choice specific to the colleges of agriculture is presented in Appendix F and Appendix G. A brief narrative of the literature review is presented under the subheadings: i) influential sources of information (individuals and media), ii) institutional characteristics, and iii) academic program characteristics as influential factors.

i) Influential sources of information (individuals and media)

Studies have shown that prospective students utilize a wide range of sources of information when making the decision to choose a college of agriculture. The most influential individuals as sources of information for students were parents and family members, relatives, friends, alumni, high school agriculture teachers, and college faculty members (Williams et al., 2008; Robinson et al., 2007; Rocca and Washburn, 2007; Bobbitt, 2006; Rocca and Washburn, 2005; Peiter et al., 2004; Segler-Conrad et al., 2004; Washburn et al., 2002; Lynch, 2001; Sivapirunthep, 2000).

Mixed results have been found with regard to high school agricultural teachers as a source of information and their influence on prospective students when making the decision to study agriculture. Segler-Conrad et al. (2004) and Washburn et al. (2002) found that high school agricultural education teachers were the most influential people for freshmen selecting the Agricultural Education major. Williams et al. (2008) and Pieter et al. (2004) reported that high school agricultural teachers were the fourth most influential individuals for students deciding to attend a college of agriculture. Similarly, Robinson et al. (2007) found the first-time enrollees ranked high school agriculture teacher as the fifth most influential individuals in the college choice process. Rocca and Washburn (2005) reported that high school agriculture teachers had the least influence on high school matriculants' and transfer matriculants' selection of an agriculture college. However, Rocca and Washburn (2007) found that high school agriculture teachers were the most influential people for college students who were former members of Future Farmers of America (FFA).

With increasing access to internet facilities, websites are one of the most important sources of information about educational institutions. Rocca and Washburn (2005) found that websites were the most used and most useful source of information for both high school matriculants and transfer matriculants of the University of Florida. However, Robinson et al. (2007) and Pieter et al. (2004) found university websites to be the fourth most helpful source of information for university freshmen. Washburn et al. (2002) studied factors influencing college choice of first-time enrollees in the College of Agriculture, Food and Natural Resources at the University of Missouri and found that although the websites (university and college) were used by less than 50% of the respondents, the respondents perceived them as useful sources of information.

Printed materials, such as university and college brochures, were useful sources of information for prospective students when selecting a college of agriculture (Robinson et al., 2007; Rocca and Washburn, 2005; Peiter et al., 2004; Washburn et al., 2002; Cole and Thompson, 1999). Cole and Thompson (1999) found that nearly 70% of the respondents at Oregon State University used pamphlets or literature to learn about the college of agriculture. Robinson et al. (2007) found that first-time enrollees ranked printed university publications as the second most used source of information when choosing a college of agriculture. Washburn et al. (2002) reported that university publications were used by 7-8 out of 10 matriculants and non-matriculants, respectively, in the College of Agriculture, Food and Natural Resources at the University of Missouri. Pieter et al. (2004) found that brochures were the third most used source of information by freshmen majoring in agriculture at the University of Kentucky. In their study, Rocca and Washburn (2005) found that more than 50% of high school matriculants and transfer
matriculants used printed university publications in the College of Agriculture and Life Sciences at the University of Florida.

Campus visits were the most important source of information for the first-time enrollees in colleges of agriculture (Robinson et al., 2007; Pieter et al., 2004). Robinson et al. (2007) and Washburn et al. (2005) reported that nearly three-quarter of the firsttime enrollees in the College of Agriculture, Food and Natural Resources at the University of Missouri used campus visits as the most important source of information when deciding to attend in the agriculture college. Pieter et al. (2004) found that university freshmen ranked campus visits as the most helpful source of information influencing their decision to attend colleges of agriculture in one land grant and three non-land grant universities in the Commonwealth of Kentucky. Rocca and Washburn (2005) and Cole and Thompson (1999) reported that more than 50% of the respondents used campus visits as a source of information and found them useful in making the decision to join colleges of agriculture.

ii) Institutional characteristics

The major institutional characteristics influencing prospective students' decision to choose a college of agriculture were the reputation of the university or college, preparation for employment, opportunities after graduation, faculty quality and reputation, and quality of the facilities (Robinson et al., 2007; Rocca and Washburn, 2005; Washburn et al., 2002). Rocca and Washburn (2007) reported that opportunities after graduation and preparation for employment were the two most influential institutional characteristics for respondents who were former FFA members. Availability of scholarships ranked below the middle half in a long list of 17 institutional

characteristics (Rocca and Washburn, 2007). Class size was the least influential institutional characteristics in all three studies mentioned above.

iii) Academic program characteristics

Studies have revealed that career opportunities available for graduates were the most influential academic program characteristic for students choosing an agriculture college (Robinson et al., 2007; Rocca and Washburn, 2007; Peiter et al., 2004; Washburn et al., 2002). Quality and reputation of courses was ranked the second most influential academic program characteristic in both studies by Robinson et al. (2007) and Rocca and Washburn (2005). In their studies, Rocca and Washburn (2007) and Peiter et al. (2004) found that respondents ranked reputation of faculty members as the second most influential influential factor. The least influential academic program characteristic was the number of students in a major.

Objectives

The specific objectives of this paper are to:

- 1. document a demographic profile of undergraduate students currently enrolled in the CANR at MSU,
- 2. identify how did students first entered the CANR,
- identify sources of information used by the CANR students to learn about college majors, and
- identify and rank the factors influencing students' decisions to enroll in the CANR majors.

Methodology

The population for this five-year study was the current undergraduate students enrolled in the CANR at MSU, from spring 2004-2008. The study utilized an online survey for simplicity and cost effectiveness. The survey instrument was developed by Dr. Murari Suvedi, Professor in the Department of Community, Agriculture, Recreation, and Resource Studies (CARRS) and Dr. Eunice Foster, Associate Dean for the Undergraduate Program in the CANR at MSU. The survey instrument was developed based on extensive literature reviews relevant to students' assessments of undergraduate programs. The draft instrument was shared with the CANR assessment committee members, undergraduate advisors, and coordinators to ensure the face and content validity. The final survey instrument incorporated the comments and suggestions received from the CANR assessment committee members, undergraduate advisors, and coordinators.

The survey instrument for the current undergraduate students had five parts (Appendix A). This chapter utilized the information obtained from the first and fourth parts of the survey questionnaire. Part one of the questionnaire was designed to solicit student's academic information: academic status, primary major, dual major, second degree, entrance to CANR, sources of information used to learn about college majors in the CANR, and important factors when making the decision to enter to their current CANR majors. The questionnaire had five response items for entrance to the CANR. The sources of information used had nine response items, including "other". The factors for deciding to enter the CANR major were measured by 16 items, which were measured on a scale of 4 (1= "Not Important" to 4= "Extremely Important"). Part four of the questionnaire sought the following demographic information of respondents: gender, age,

ethnicity, residence, residency status, participation in 4-H/FFA, and membership in the National Honor Society.

The electronic mail addresses of the current undergraduate students were obtained from the Office of the Dean in the CANR. The online surveys were created and administered by the Center for Evaluative Studies in the Department of Community, Agriculture, Recreation, and Resource Studies (CARRS) at MSU. The online surveys were sent to all the current undergraduate students through university e-mail in a personalized "cover letter", along with a hyperlink to the survey. Students were asked to "click" on the hyperlink in the e-mail text to access the web-based survey. Once the student completed the survey and clicked "submit" button, data were automatically collected in the web-based database. The survey was administered in the spring semester, from mid March to April, of each year from 2004 to 2008.

To increase the survey response, a free two-scoop ice-cream coupon was provided as a token incentive to each participant who completed the survey. Additionally, survey reminders were sent after one week and again a week before the icecream event to enhance the survey response rate. The response rates were 30.8%, 9.5%, 25.4%, 22.2%, and 34.4% in 2004, 2005, 2006, 2007 and 2008, respectively. The overall survey response rate for the five-year survey was 24.5%.

The data were analyzed by using computer software Statistical Package for Social Science (SPSS 15) for Windows. The data were summarized by using descriptive statistics: frequency, mean, and standard deviation. Cross tabulation was done between majors and entrance to the CANR to identify sources of students to each major within the CANR. The factors for deciding to enter the CANR program were identified by

calculating the mean and standard deviation for each factor and, then ranked in descending order based on mean. The reliability of each factor was determined by Cronbach's alpha procedure. The overall reliability for factors for deciding to enter the CANR program was 0.867.

Results and Discussions

This section presents the results and discussions of the five-year study. The results are summarized in descriptive statistics for demographic characteristics of survey respondents, their responses to entrance to the CANR, use of sources of information to learn about the CANR major, and important factors for making their decisions to enter the current major. A total of 2,803 undergraduate students within the CANR at MSU participated in the five-year study.

Demographic characteristics of respondents

Of 2,798 respondents who indicated their academic status in the survey, 384 (13.7%) were freshmen, 689 (24.6%), were sophomores, 1,117 (39.9%) were juniors and 608 (21.7%) were seniors (Table 1). Of the total respondents, 184 (6.6%) indicated that they had second major. Similarly, 249 (12.3%) respondents reported a second degree. The number of female and male respondents was 1,782 (63.8%) and 1,009 (36.2%), respectively. For the entire five-year study, female students participated more than male students. The age of respondents ranged from 18 to 58 years. The mean age of respondents was 21 years.

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				UK:	00	el	Surve	y Year	ps r 1	nu	kt hu		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Demographic		2004	2	005	2	900		2007	4	008	T	otal
	cliaracteristics	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)
	Academic Status Freshman	75	(6.6)	35	(15.5)	96	(19.2)	64	(12.2)	114	(14.5)	384	(13.7)
	Sophomore	170	(22.3)	75	(33.2)	138	(27.6)	125	(23.8)	181	(23.0)	689	(24.6)
	Junior	208	(27.3)	109	(48.2)	250	(50.0)	207	(39.4)	343	(43.6)	1117	(6.95)
	Senior	308	(40.5)	7	(3.1)	16	(3.2)	129	(24.6)	148	(18.8)	608	(21.7)
	Total	761	(100.0)	226	(100.0)	500	(100.0)	525	(100.0)	786	(100.0)	2798	(100.0)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Second Major Yes	52	(6.8)	15	(9.9)	29	(5.8)	39	(7.4)	49	(6.3)	184	(9.6)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	No	712	(93.2)	213	(93.4)	469	(94.2)	485	(92.6)	735	(93.8)	2614	(93.4)
$ \begin{array}{c} \mbox{Second Degree} \\ \mbox{Yes} \\ No \\ No \\ Total \\ \mbox{Total} \\ \mbo$	Total	764	(100.0)	228	(100.0)	498	(100.0)	524	(100.0)	784	(100.0)	2798	(100.0)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Second Degree Yes			18	(8.2)	50	(10.2)	80	(15.3)	101	(12.8)	249	(12.3)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	No		*	202	(91.8)	441	(89.8)	444	(84.7)	685	(87.2)	1772	(87.7)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Total			220	(100.0)	491	(100.0)	524	(100.0)	786	(100.0)	2021	(100.0)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Gender Male	320	(42.0)	88	(38.9)	139	(28.2)	159	(30.3)	303	(38.5)	1009	(36.2)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Female	441	(58.0)	138	(61.1)	354	(71.8)	366	(69.7)	483	(61.5)	1782	(63.8)
Age 19 yrs. and younger 137 (18.1) 60 (2.6.4) 157 (31.6) 130 (2.4.8) 205 (2.6.2) 689 (2.0.3) 151 (19.9) 69 (30.4) 161 (3.2.4) 129 (2.4.6) 212 (7.1) 722 (2.1) 722 (2.1) 131 (2.2.7) 131 (2.2.7) 131 (2.2.7) 202 (2.3.8) 707 (2.2.7) rand older 277 (3.6) 26 (3.2.7) 131 (2.2.7) 131 (2.2.7) 164 (2.0.9) 77 (2.2.7) rand older 773 (3.6) 227 (100.0) 227 (100.0) 227 (100.0) 227 (100.0) 227 (100.0) 227 (100.0) 227 (100.0) 227 (100.0) 228 (100.0) 228 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 221 (100.0) 228 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 229 (100.0) 221 (100.0) 229 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 239 (100.0) 2	Total	761	(100.0)	226	(100.0)	493	(100.0)	525	(100.0)	786	(100.0)	2791	(100.0)
20 yrs. 151 (19.9) 69 (30.4) 161 (32.4) 129 (21.2) (77.1) 722 21 yrs. 199 (26.2) 62 (27.3) 113 (22.7) 131 (25.0) 202 (55.8) 707 21 yrs. 199 (26.2) 62 (27.3) 113 (25.7) 131 (25.0) 202 (25.8) 707 22 yrs. and older 272 (35.8) 36 (15.9) 66 (13.3) 135 (25.7) 164 (20.9) 673 Total 759 100.01 227 (100.01) 227 (100.01) 735 (100.01) 731 100.01 279 100.01 279 100.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01 279 101.01	Age 19 yrs. and younger	137	(18.1)	60	(26.4)	157	(31.6)	130	(24.8)	205	(26.2)	689	(24.7)
21 yrs. 199 (26.2) 62 (27.3) 113 (22.7) 131 (25.0) 202 (25.8) 707 22 yrs. and older 277 (35.8) 36 (15.9) 66 (13.3) 135 (25.7) 164 (20.9) 673 Total 759 (100.0) 227 (100.0) 497 (100.0) 525 (100.0) 733 (100.0) 273	20 yrs.	151	(6.61)	69	(30.4)	161	(32.4)	129	(24.6)	212	(27.1)	722	(25.9)
22 yrs. and older 272 (35.8) 36 (15.9) 66 (13.3) 135 (25.7) 164 (209) 673 Total 759 (100.0) 227 (100.0) 497 (100.0) 525 (100.0) 783 (100.0) 271	21 yrs.	199	(26.2)	62	(27.3)	113	(22.7)	131	(25.0)	202	(25.8)	707	(25.3)
Total 759 (100.0) 227 (100.0) 497 (100.0) 525 (100.0) 783 (100.0) 2791	22 yrs. and older	272	(35.8)	36	(15.9)	99	(13.3)	135	(25.7)	164	(20.9)	673	(24.1)
	Total	759	(100.0)	227	(100.0)	497	(100.0)	525	(100.0)	783	(100.0)	2791	(100.0)

* Not asked in 2004 survey.

Caucasian students constituted the highest proportion (87.1%) of respondents, followed by Hispanic students (3.9%) (Table 2). Participation of Asian-American students (2.5%) was slightly higher than the participation of African-American students (2.1%). Less than one percent (0.6%) of students were Native-American.

Nearly one-fifth (19.3%) of respondents were from rural areas and had farm experience. A little more than a quarter (26.1%) of the respondents were from rural areas but had no farm experience. The majority of respondents (43.8%) were from suburban communities, and 10.8% of the respondents were from urban communities. The proportion of students from suburban communities was the highest during the entire fiveyear study. When combined, urban and suburban respondents constituted a majority (54.6%) of the respondents. A high majority (91.7%) of respondents were in-state students. Participation of out-of-state students and international students was 5.7% and 2.6%, respectively. Nearly one quarter (24.4%) of respondents had participated in youth development programs such as 4-H and FFA activities. More than half (55.3%) of the respondents indicated membership in the National Honor Society while they were in high school.

						Surve	y Year			ka	tu	ice.
Demographic characteristics		2004	2	005	2	900	5	007	2	008		otal
	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)
Ethnicity												
White	999	(87.7)	206	(60.7)	444	(89.3)	460	(88.0)	651	(83.5)	2427	(87.1)
Hispanic	74	(6.7)	4	(1.8)	5	(1.0)	*	(1.5)	17	(2.2)	108	(3.9)
African-American	1	(0.1)	б	(1.3)	Ξ	(2.2)	11	(2.1)	32	(4.1)	58	(2.1)
Asian-American	1	(0.0)	2	(3.1)	15	(3.0)	13	(2.5)	28	(3.6)	70	(2.5)
Native American	4	(0.5)	-	(0.4)	4	(0.8)	e	(9.0)	9	(0.8)	18	(0.0)
Other	2	(0.0)	9	(2.6)	18	(3.6)	28	(5.4)	46	(5.9)	105	(3.8)
Tota	II 759	(100.0)	227	(100.0)	497	(100.0)	523	(100.0)	780	(100.0)	2786	(100.0)
Residency In a rural area, on a farm	172	(22.7)	54	(23.9)	98	(19.8)	86	(16.4)	129	(16.4)	539	(19.3)
In a rural area, but not on a farm	206	(27.1)	74	(32.7)	138	(27.9)	143	(27.2)	166	(21.1)	727	(26.1)
In a suburban community	296	(39.0)	87	(38.5)	219	(44.2)	235	(44.8)	386	(49.2)	1223	(43.8)
In an urban community	85	(11.2)	11	(4.9)	40	(8.1)	61	(11.6)	104	(13.2)	301	(10.8)
Tota	d 759	(100.0)	226	(100.0)	495	(100.0)	525	(100.0)	785	(100.0)	2790	(100.0)
Residency Status												
In state student			204	(60.3)	459	(92.7)	477	(01.0)	719	(91.8)	1859	(61.7)
Out of state student		*	19	(8.4)	26	(5.3)	28	(5.3)	43	(5.5)	116	(5.7)
International student			m	(1.3)	10	(2.0)	19	(3.6)	21	(2.7)	53	(2.6)
Tota	-		226	(100.0)	495	(100.0)	524	(100.0)	783	(100.0)	2028	(100.0)
Participation in 4H/FFA												
Yes	233	(30.5)	72	(31.7)	112	(22.5)	115	(21.9)	151	(19.2)	683	(24.4)
No	531	(69.5)	155	(68.3)	385	(77.5)	410	(78.1)	634	(80.8)	2115	(75.6)
Tota	1 764	(100.0)	227	(100.0)	497	(100.0)	525	(100.0)	785	(100.0)	2798	(100.0)
Member of national honor society												
Yes			123	(54.7)	279	(56.6)	291	(55.7)	426	(54.3)	1119	(55.3)
No			102	(45.3)	214	(43.4)	231	(44.3)	358	(45.7)	905	(44.7)
Tota	-		200	(1000)	102	10000	500	100017	104	10001/	1000	10 00 1/

* Not asked in 2004 survey.

The number of respondents in each major for the entire five-year study is presented in Table 3. The CANR at MSU offers 23 academic majors in the undergraduate program through various academic departments and schools. Participants from almost all the academic majors responded to the online survey. The highest number of students, 500 (17.9%), participated from the Animal Science major, followed by Packaging major, 375 (13.5%), and the Dietetics major, 291 (10.5%). These three majors are the largest majors in terms of size of students enrollment within the CANR at MSU. The students majoring in Dietetics, Interior Design, and Landscape Architecture did not participate in the 2004 and 2005 surveys. Participants from Biosystems Engineering participated only in the 2004 survey. Similarly, participants majoring in Technology Systems Management, Entomology, and Plant Pathology participated only in the 2008 survey. It is important to note that Department of Entomology and Department of Plant Pathology are the two smallest departments by size of undergraduate enrollment in the CANR at MSU.

		2004		2005		2006		2007	2	908	T	otal
Primary Major	u	(%)	u	(%)	L	(%)	E	(%)	u	(%)	u	(%)
Animal Science	129	(17.20)	54	(23.79)	98	(19.64)	06	(17.18)	129	(16.41)	500	(17.95)
Packaging	157	(20.93)	24	(10.57)	51	(10.22)	49	(9.35)	94	(11.96)	375	(13.46)
Dietetics	0	(00.0)	0	(00.0)	72	(14.43)	89	(16.98)	130	(16.54)	291	(10.45)
Fisheries and Wildlife	64	(8.53)	22	(69.6)	28	(5.61)	36	(6.87)	45	(5.73)	195	(1.00)
Horticulture	58	(7.73)	23	(10.13)	35	(1.01)	20	(3.82)	25	(3.18)	161	(5.78)
Construction Management	40	(5.33)	13	(5.73)	24	(4.81)	19	(3.63)	41	(5.22)	137	(4.92)
Agribusiness Management	30	(4.00)	19	(8.37)	26	(5.21)	20	(3.82)	29	(3.69)	124	(4.45)
Interior Design	0	(00.0)	0	(00.0)	32	(6.41)	40	(2.63)	51	(6.49)	123	(4.41)
Crop and Soil Science	41	(5.47)	13	(5.73)	16	(3.21)	21	(4.01)	28	(3.56)	119	(4.27)
Food Industry Management	24	(3.20)	9	(2.64)	13	(2.61)	25	(4.77)	50	(6.36)	118	(4.24)
Food Science	21	(2.80)	∞	(3.52)	15	(3.01)	29	(5.53)	33	(4.20)	106	(3.80)
Environmental Studies and Applications	42	(2.60)	12	(5.29)	15	(3.01)	14	(2.67)	23	(2.93)	106	(3.80)
Park, Recreation and Tourism Resources	36	(4.80)	9	(2.64)	12	(2.40)	19	(3.63)	23	(2.93)	96	(3.45)
Agriscience	35	(4.67)	∞	(3.52)	6	(1.80)	11	(2.10)	13	(1.65)	76	(2.73)
Landscape Architecture	0	(00.0)	0	(00.0)	20	(4.01)	19	(3.63)	27	(3.44)	99	(2.37)
ANR Communication	27	(3.60)	e	(1.32)	Ξ	(2.20)	6	(1.72)	15	(1.91)	65	(2.33)
Environmental Economics and Policy	7	(0.93)	10	(4.41)	13	(2.61)	9	(1.15)	6	(1.15)	45	(1.62)
Forestry	13	(1.73)	9	(2.64)	6	(1.80)	00	(1.53)	∞	(1.02)	44	(1.58)
Biosystems Engineering	26	(3.47)	0	(00.0)	0	(00.0)	0	(00.0)	0	(00.0)	26	(0.93)
Technology Systems Management	0	(00.0)	0	(00.0)	0	(00.0)	0	(00.0)	9	(0.76)	9	(0.22)
Entomology	0	(00.0)	0	(00.0)	0	(00.0)	0	(00.0)	9	(0.76)	9	(0.22)
Plant Pathology	0	(00.0)	0	(00.0)	0	(00.0)	0	(00.0)	-	(0.13)	1	(0.04)
Total	750	(100)	227	(100)	499	(100)	524	(100)	786	(100)	2786	(100)

~
~
-
- 3
0
10
~
-
-
. 8
8
- 2
·
(CC)
- C
~
8
. =
_
d
d
, pr
ts' pr
nts' pr
ents' pr
dents' pr
ndents' pr
ondents' pr
bondents' pr
spondents' pr
espondents' pr
cespondents' pr
Respondents' pr
Respondents' pr
3. Respondents' pr
3. Respondents' pr
e 3. Respondents' pr
ele 3. Respondents' pr
ble 3. Respondents' pr
able 3. Respondents' pr
Table 3. Respondents' pr

Sources of students in the CANR

The CANR at MSU receives students from various sources. Table 4 presents the sources of students in the CANR program at MSU. Of the 2, 782 respondents, 1,008 (36.2%) indicated that they entered into the CANR directly from high school. In each of the five years of the study, more than 30% of the respondents indicated that they entered the CANR program directly from high school. Thirteen percent (13.3%) of the respondents were transfer students from community colleges. Less than ten percent (8.2%) of the respondents were transfer students from other colleges or universities. About one percent (1.3%) respondents were transfer students from MSU's Agricultural Technology program. Forty-one percent of the respondents were transfer students from other students from other MSU programs. Overall, nearly two-thirds (64.8%) of the survey respondents were transfer students either from other colleges/universities or from other MSU programs.

Table 4 shows that there are four major sources of students to the CANR at MSU. Transfer-students within MSU are the primary source of students, followed by students directly from high school, transfer students from community colleges, and transfer students from other colleges/universities. Besides transfer students from within MSU, high school graduates are the second most important source of students, accounting for more than one third of the students in the CANR. According to the National Center for Higher Education Management System (NCHEMS, 2007), the percentage of public high school graduates going directly to college is 65.2 in Michigan in 2006, which indicates that the CANR at MSU has received a little more than half of the college going population directly from public high schools.

1 auto 7. Incorpositucialis cialitatice to the CAM	sum ngoud vi					
	2004	2005	2006	2007	2008	Total
Enuance	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
From high school	250 (33.2)	72 (32.0)	189 (37.9)	186 (35.8)	311 (39.6)	1,008 (36.2)
Transferred from community college	101 (13.4)	23 (10.2)	73 (14.6)	74 (14.2)	98 (12.5)	369 (13.3)
Transferred from other college/university	62 (8.2)	20 (8.9)	27 (5.4)	47 (9.1)	72 (9.2)	228 (8.2)
Transferred from MSU's AgTech	9 (1.2)	6 (2.7)	7 (1.4)	9 (1.7)	6 (0.7)	37 (1.3)
Transferred from another MSU program	331 (44.0)	104 (46.2)	203 (40.7)	204 (39.2)	298 (38.0)	1,140 (41.0)
Total	753 (100)	225 (100)	499 (100)	520 (100)	785 (100)	2,782 (100)

VR programs
CA
the (
entrance to
Respondents'
able 4.

It indicates that it may be possible for the CANR at MSU to increase its enrollment of students directly from high schools by improving its recruiting strategies.

Community colleges have provided 13% of the total students in the CANR, which is less than half of the current transfer rate of 28.9% from community colleges to fouryear programs nationally (Eddy et al., 2006). According to a national study conducted for the National Center for Educational Statistics, 68% of beginning community college students enrolled in an academic program, and 71% indicated that they anticipate earning a bachelor's degree or higher (Bradburn et al., 2001). A study of Michigan community college students indicated that 61% intended to transfer to other institutions and 79% of those indicated that they intended to transfer to public four-year schools in Michigan (Monroe and Richtig, 2002). These statistics indicate that from a recruitment point of view, community colleges are the best potential source of students for four-year public colleges in Michigan, including the CANR at MSU.

Several factors affect community college students' decision to transfer to a fouryear college. Monroe and Richtig (2002) studied the factors affecting transfer decisions of community college students in Michigan and found that academic program offerings were the most important factor influencing the decision of students who intend to transfer. Other important factors were student services, affordability with financial aid, ease of degree completion, and friends and family members who attended the four-year institution (Monroe and Richtig, 2002).

Although transfer students from other MSU programs constituted the highest proportion of the CANR students, the percentage of transfer students decreased by one percent per year during the last three years (2006 to 2008).

Table 5 shows the entrance of respondents by academic major in the CANR at MSU. The results show that some of the majors, such as Bio-systems Engineering, Interior Design, Agriculture and Natural Resource Communication, Agribusiness Management and Agriscience, have more than 50% of their students directly from high schools. It seems that these majors may have gained popularity among high school students. Nearly 50% of the respondents in the Crop and Soil Science major entered directly from high school. More than one-third of the respondents entered directly from high schools to some majors like Landscape Architecture, Animal Science, Horticulture and Environmental Science.

More than one quarter of respondents transferred from community colleges to the Fisheries and Wildlife major, and nearly one quarter joined the Horticulture and Crop and Soil Science majors. One in five students in the Environmental Studies and Applications, Forestry, and Landscape Architecture majors is a transfer student from a community college.

Transfer students from other colleges/universities preferred the Crop and Soil Science major, followed by Landscape Architecture, and Horticulture. A small percentage (1.3%) of the Agricultural Technology students transferred to Animal Science, Agribusiness Management, Crop and Soil Science, Agriscience, and Horticulture majors within the CANR.

Transfer students from other programs within MSU constituted the highest proportion of the CANR students. The highest percentage (83.1%) of transfer students from other MSU programs entered the Food Industry Management major and the second highest percentage entered the Environmental Economics and Policy majors.

Primary majors	From high school	Transferred from community college	Transferred from other college/university	Transferred from MSU's AgTech	Transferred from another MSU program	Total
Animal Science	220 (44.2%)	49 (9.8%)	36 (7.2%)	10 (2.0%)	183 (36.7%)	498 (100.0%)
Packaging	93 (25.2%)	27 (7.3%)	17 (4.6%)	0 (0.0%)	232 (62.9%)	369 (100.0%)
Dietetics	79 (27.2%)	22 (7.6%)	29 (10.0%)	0 (0.0%)	160 (55.2%)	290 (100.0%)
Fisheries and Wildlife	49 (25.1%)	54 (27.7%)	19 (9.7%)	0 (0.0%)	73 (37.4%)	195 (100.0%)
Horticulture	61 (38.4%)	36 (22.6%)	20 (12.6%)	4 (2.5%)	38 (23.9%)	159 (100.0%)
Construction Management	43 (32.1%)	25 (18.7%)	12 (9.0%)	0 (0.0%)	54 (40.3%)	134 (100.0%)
Agribusiness Management	68 (54.8%)	20 (16.1%)	9 (7.3%)	10 (8.1%)	17 (13.7%)	124 (100.0%)
Interior Design	74 (60.2%)	10 (8.1%)	12 (9.8%)	0 (0.0%)	27 (22.0%)	123 (100.0%)
Food Industry Management	10 (8.5%)	7 (5.9%)	3 (2.5%)	0 (0.0%)	98 (83.1%)	118 (100.0%)
Crop and Soil Science	56 (47.9%)	26 (22.2%)	18 (15.4%)	7 (6.0%)	10 (8.5%)	117 (100.0%)
Environmental Studies and Applications	36 (34.0%)	22 (20.8%)	7 (6.6%)	0 (0.0%)	41 (38.7%)	106 (100.0%)
Food Science	46 (43.4%)	12 (11.3%)	12 (11.3%)	0 (0.0%)	36 (34.0%)	106 (100.0%)
Park, Recreation and Tourism Resources	18 (18.9%)	11 (11.6%)	9 (9.5%)	0 (0.0%)	57 (60.0%)	95 (100.0%)
Agriscience	39 (52.0%)	12 (16.0%)	4 (5.3%)	6 (8.0%)	14 (18.7%)	75 (100.0%)
Landscape Architecture	30 (45.5%)	13 (19.7%)	9 (13.6%)	0 (0.0%)	14 (21.2%)	66 (100.0%)
ANR Communication	36 (55.4%)	11 (16.9%)	4 (6.2%)	0 (0.0%)	14 (21.5%)	65 (100.0%)
Environmental Economics and Policy	12 (27.3%)	1 (2.3%)	1 (2.3%)	0 (0.0%)	30 (68.2%)	44 (100.0%)
Forestry	12 (27.3%)	9 (20.5%)	5 (11.4%)	0 (0.0%)	18 (40.9%)	44 (100.0%)
Biosystems Engineering	17 (65.4%)	1 (3.8%)	1 (3.8%)	0 (0.0%)	7 (26.9%)	26 (100.0%)
Technology Systems Management	3 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (50.0%)	6 (100.0%)
Entomology	2 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (66.7%)	6 (100.0%)
Plant Pathology	0 (0.0%)	0 (0.0%)	0 (%0) 0	0 (0.0%)	1 (100.0%)	1 (100.0%)
Total	1004	368	227	37	1131	2767

It seems that Agricultural Economics studies are more appealing to transfer students within MSU. Six out of ten students in Packaging; Park, Recreation and Tourism Resources; and Entomology majors are transfer students from other MSU programs.

It is interesting to note that no respondents transferred from community colleges, other colleges or universities, or MSU's Agricultural Technology program to the Technology Systems Management, Entomology, or Plant Pathology majors in the CANR. The reason could be that these are small and little-known majors in the CANR. Several factors influence students' decisions to select or transfer college majors. The important influencing factors are presented in Table 7 and discussed with citations to the relevant literature.

Sources of information used by the respondents

Prospective students use various sources of information when selecting a college. Table 6 presents the frequency count and percentage for sources of information used by respondents to learn about the CANR majors at MSU. Respondents were asked to indicate various sources of information they had used. The results indicated that the primary source of information used by the respondents to learn about the CANR majors was family and friends (31.8%). The second important source of information was the college or university web site (27.1%). The third most important source of information was printed materials (college brochures). More than ten percent (12.2%) of the respondents utilized college brochure as their source of information about the CANR program. The fourth most important source of information utilized by the respondents was personnel from the University Undergraduate Division (UUD) at MSU. The fifth

sources of information were high school counselors/ teachers and the CANR faculty members at MSU. Five percent of the respondents received information about the CANR program from high school counselors, teachers, and the CANR faculty members. Other sources of information were campus visits; high school career days; recruitment meetings and other professional meetings organized by 4-H, FFA, and Career Center; and events such as Agriculture Expo, and ANR Week organized by the CANR.

Prospective students use many sources of information including parents, guardians, and friends in the process of making the decision to choose a particular college or major. This study shows that family and friends were the principal source of information to learn about the CANR majors; this is consistent with the findings of Cole and Thopmson (1999) and Peiter et al. (2004).

A number of other research findings indicate that parents (family) and friends (peers) were the individuals who most influence students' college choice (Williams et al., 2008; Robinson et al., 2007; Rocca and Washburn, 2005; Segler-Conrad et al., 2004; Washburn et al., 2002; Lynch, 2001; Powers, 2000; Sivapirunthep, 2000; Scofield, 1995; Litten, 1982; Chapman, 1981). A study of college freshmen at the University of Minnesota showed that parents, friends (peers), and current college students were the individuals who influenced freshmen to select the Agricultural Education major (Segler-Conrad et al., 2004). Another attitudinal research study at Iowa State University (ISU) found that parents, university students, and other family members were influential on a student's decision to attend ISU (Scofield, 1995).

Sources	2 Z	.004 =761)	Z Z	006 =226)	(N 2	500) =500)	2(N=	08 525)	Tc (N=2	tal ,012)
	u	(%)	u	(%)	u	(%)	u	(%)	u	(%)
Family/Friends	404	(37.0)	230	(29.9)	221	(29.0)	387	(30.3)	1,242	(31.8)
University/College website	231	(21.1)	237	(30.9)	234	(30.7)	356	(27.9)	1,058	(27.1)
Printed materials (college brochures)	190	(17.4)	66	(12.9)	83	(10.9)	103	(8.1)	475	(12.2)
University Undergraduate Division		*	6L	(10.3)	110	(14.4)	159	(12.4)	348	(8.9)
High school counselor/teacher	68	(6.2)	42	(5.5)	37	(4.9)	57	(4.5)	204	(5.2)
Professor (Advisor)	60	(8.2)	26	(3.4)	32	(4.2)	55	(4.3)	203	(5.2)
Campus visit			*	*			106	(8.3)	106	(2.7)
High school career day/ recruitment meetings	33	(3.0)	10	(1.3)	Ξ	(1.4)	17	(1.3)	71	(1.8)
Others (FFA, 4-H, MAP, Career Center, Ag. Expo, etc.).	77	(1.0)	45	(5.9)	34	(4.5)	38	(3.0)	194	(5.0)
Total	1,093	(100)	768	(100)	762	(100)	1,278	(100)	3,901	(100)

Table 6. Sources of information used by respondents to learn about the CANR majors

Note:

i. This was a multiple response question. Thus, the total frequency counts exceed the total N in each survey year.

ii. This question was not asked in the 2005 survey.

* This item was added in the 2006 survey.

** This item was added in the 2008 survey.

University and college websites are important sources of information for today's technologically savvy students. Respondents in this study indicated that the MSU and CANR websites were their second most important source of information. Studies show that the university/college website is one of the most important sources of information for college students (Hoyt and Brown, 2003) and college-bound high school students (Butler et al., 2004). Rocca and Washburn (2005) found that 70 percent of high school and transfer matriculants used websites to learn about degree programs at the University of Florida. However, a study of first-time enrollees in the College of Agriculture at the University of Missouri (Robinson et al., 2007) ranked the university website as the fourth most important source of information. A similar result was found in a study of freshmen students in the agriculture program at the University of Kentucky, in which respondents ranked the website as the fourth most useful source of information (Peiter et al., 2004).

Printed materials, such as college brochures and university publications, are useful sources of information for prospective college students. The findings of this study revealed that printed materials were the third most useful source of information in selecting the CANR programs at MSU. This result is in agreement with the findings of other studies (Rocca and Washburn, 2005; Peiter et al., 2004; Hoyt and Brown, 2003) in which printed materials were ranked as the third most important source of information used by students while selecting a college of agriculture. However, Cole and Thompson (1999) and Segler-Conrad et al. (2004) found that university pamphlets and brochures rated as highest in importance, and Robinson et al. (2007) found that they were the second most important source of information used by the respondents when selecting a college of agriculture.

University representatives have been found to be a very important source of information for prospective students while making the decision to choose a college major. The University Undergraduate Division (UUD) was used by slightly less than ten percent of the respondents in this survey. Washburn et al. (2002) found that personal conversation with and letters/information mailed from a university admission representative were useful sources of information used in the process of choosing the college of agriculture at the University of Missouri. Letters from admission staff were the sixth most useful source of information for freshmen at the University of Kentucky (Peiter et al., 2004). Similar results were found by Robinson et al. (2007) in their study of influential factors used by first year, first-time enrollees at the University of Kentucky, who ranked conversations with admissions representatives, letters and/or information from college representatives, and personal conversations with college representatives as the 7th, 8th, and 9th most important sources of information, respectively.

High school counselors, teachers, and college professors, which collectively ranked as the fifth most important source of information, were consulted by five percent of the respondents in this study. However, in other research studies personal contact or conversations with professors has been found to be a more important and more frequently used source of information (Peiter et al. 2004; Segler-Conard et al. 2004; Washburn et al. 2002). High school teachers were consulted by more than a quarter of students while choosing the college of agriculture sciences at Oregon State University (Cole and Thompson, 1999). However, Robinson et al. (2007) found that personal conversations with professors ranked the 10th most important source of information used by first year, first-time enrollees. A recent study by Williams et al. (2008) revealed that high school

Agriscience teachers and high school counselors ranked as the 4th and 12th most influential persons as perceived by first time agriculture students at Texas Tech University.

The importance of campus visits as a source of information for prospective students was asked only in the 2008 survey. Campus visits were considered the fourth most useful source of information and used by eight percent of the respondents. Although campus visits were an infrequently used source of information in this study, they have been found to be a widely used and very useful source of information for college students when choosing a college of agriculture (Robinson et al., 2007; Rocca and Washburn, 2005; Peiter et al., 2004; Hoyt and Brown, 2003; Washburn et al., 2002; Cole and Fanno, 1999).

In summary, family and friends, university and college websites, and printed materials are the most used sources of information utilized by prospective students while choosing the CANR majors at MSU.

Factors in deciding the CANR majors

The final objective of this study was to identify the important factors for the decision to enter into the CANR majors and to rank them for different groups of respondents in the order of importance, from high to low. To accomplish this objective, respondents were asked the question "how important was each of the following factors to your decision to enter your current CANR major?" The question contained sixteen response items on a scale of 1 indicating "not important" to 4 being "extremely important".

Table 7 presents the important factors based on the mean for each of the factors, and their rankings in descending order for overall respondents and for each group of respondents. The description, comparisons, and discussions follow for each factor by type of respondent in the columns in Table 7.

Academic program or curriculum in the CANR was found to be a very important factor, and it ranked first across the different groups of respondents. However, the transfer students from within the MSU had the highest mean score (Mean=3.36) among the four groups. Respondents who joined the CANR directly from high school and transfers from other colleges/university perceived the CANR's academic program or curriculum to be equally important.

Reputation of the CANR at MSU was ranked the second important factor by respondents in three groups: students entering directly from high school, transfer students from community college, and transfer students from other colleges/universities. It is important to note that respondents who transferred from other colleges/universities perceived the institutional reputation of the CANR highest, with a mean score of 2.87. Overall, the reputation of the CANR ranked as the second important factor for respondents entering the CANR.

	Hi	gh School	Comm	unity College	Colleg	Other e/University	MS	U's other ograms	Overall	Respondents
Factors	_=u)	755-1005)	=u)	:266-368)	=u)	165-227)	}=u)	332-1170)	(n=2	018-2769)
	Rank	Mean* (SD)	Rank	Mean* (SD)	Rank	Mean* (SD)	Rank	Mean* (SD)	Rank	Mean* (SD)
Academic program/curriculum better suited to your interests	1	3.31 (0.76)	1	3.19 (0.79)	I	3.31 (0.77)	1	3.36 (0.75)	1	3.31 (0.76)
Reputation of CANR at MSU	2	2.85 (0.91)	2	2.78 (0.96)	2	2.87 (0.88)	3	2.56 (0.96)	2	2.72 (0.95)
Opportunity for internship	3	2.62 (1.04)	4	2.50 (1.07)	3	2.67 (1.09)	2	2.61 (1.07)	3	2.60 (1.06)
Academic advising	7	2.35 (0.99)	9	2.28 (1.04)	9	2.38 (1.03)	4	2.47 (1.01)	4	2.39 (1.01)
Recommendation of friend/alumni/family	4	2.49 (0.92)	6	2.28 (0.97)	5	2.41 (0.97)	5	2.30 (0.96)	5	2.38 (0.95)
Opportunity for study abroad	5	2.43 (1.09)	11	2.04 (1.07)	10	2.23 (1.09)	7	2.17 (1.04)	9	2.25 (1.07)
Scholarship/financial aid	9	2.42 (1.10)	5	2.36 (1.15)	7	2.36 (1.17)	14	2.04 (1.09)	6	2.25 (1.12)
Clubs and extra-curricular options	8	2.31 (0.93)	11	2.04 (0.89)	13	2.14 (0.86)	8	2.16 (0.90)	7	2.20 (0.91)
Personal/family reasons	6	2.27 (0.97)	8	2.18 (1.04)	6	2.26 (1.01)	10	2.11 (0.96)	8	2.19 (0.98)
Opportunity for research	10	2.26 (1.02)	7	2.19 (1.05)	8	2.27 (1.00)	9	2.12 (0.98)	8	2.19 (1.01)
Credit evaluation and transfer	14	1.89 (0.98)	3	2.61 (1.10)	4	2.60 (1.06)	6	2.19 (1.05)	6	2.17 (1.07)
Class size	11	2.13 (0.93)	10	2.09 (0.97)	11	2.21 (0.97)	12	2.09 (1.01)	10	2.12 (0.97)
Opportunity for service learning	11	2.13 (0.98)	6	2.12 (1.03)	12	2.19 (0.96)	11	2.10 (0.99)	10	2.12 (0.99)
Faculty member contact	12	2.06 (1.00)	12	1.96 (1.05)	14	2.00 (1.01)	13	2.07 (0.98)	11	2.04 (1.00)
4-H/FFA background	13	1.97 (1.17)	13	1.57 (0.96)	15	1.64 (0.91)	16	1.42 (0.78)	12	1.66 (1.00)
Ineligible for preferred major at MSU	15	1.40 (0.76)	14	1.40 (0.84)	16	1.44 (0.81)	15	1.60 (0.95)	13	1.49 (0.87)
* Mean is computed based on 1:	= Not Ir	nportant, 2=S	Somew	at Important	, 3=Ver	y Important,	and 4=I	Extremely Im	iportant	

Table 7. Factors in deciding the CANR majors

The results of this study showed that the academic program characteristics and institutional reputation of the CANR at MSU are the two most important factors in prospective students' decision to choose a CANR major. These findings are consistent with the findings of other studies (Robinson et al., 2007; Rocca and Washburn, 2005; Hoyt and Brown, 2003; Hodges and Barbuto Jr., 2002; Pratt and Evans, 2002; Washburn et al., 2002; Chapman, 1981) that investigated the factors influencing college choice decisions. Hoyt and Brown (2003) did a comprehensive review of studies identifying college choice factors and found that the availability of academic programs that suit the applicant's interest and academic reputation were placed in the number one category across several studies. Pratt and Evans (2002) found that the availability of programs was the most important reason selected by new college freshmen while making their college decision. Quality of specific academic programs and academic reputation were the most influencing factor for rural and urban high school students choosing postsecondary institutions (Hodges and Barbuto Jr., 2002). Robinson et al. (2007) and Washburn et al. (2002) studied factors that first-time enrollees utilized when choosing a college of agriculture and found that quality, reputation of the courses, and academic reputation of the university were the most influential factors. Rocca and Washburn (2005) also reported similar results in their study of high school matriculants and transfer matriculants. Monroe and Richtig (2002) found that academic program offerings was the number one factor for transfer decision among community colleges students to four-year public institutions in Michigan.

Opportunity for internships was ranked the third important factor by the respondents who were directly from high school and transfer students from other

colleges/universities. It is important to note that transfer students from other programs within MSU ranked internship opportunities in the CANR as the second most important factor. The reason for their ranking this factor as the second important factor could be that the transfer students within MSU had already been at MSU campus for some time and may have gotten a chance to compare the internship opportunities available in their former major department with those available in the CANR. Thus, availability of more internship opportunities for students in the CANR might have influenced the students from other MSU programs. Studies show that career opportunities after graduation is one of the most important criteria for selection of college major for students (Robinson et al., 2007; Rocca and Washburn, 2005; Hoyt and Brown, 2003; Pope and Fermin, 2003; Hodges and Barbuto Jr., 2002; Washburn et al., 2002). Internships are associated with job opportunities after graduation. Thus, opportunity for internships is a particularly important factor for those students who would like to join the workforce after graduation. In the current ailing economy and shrinking job pool, it is important that college graduates develop certain employable skills; this is possible through internship programs. It is also believed that internship opportunities may lead to a full-time job offer. A recent study of Michigan State University indicates that graduates who stacked up as many internships as possible have a high chance of getting a job (Gardner, 2008).

Academic advising was ranked the sixth important factor by respondents from community colleges and transfer students from other colleges/universities. It was ranked seventh by the respondents who entered the CANR directly from high school. However, respondents who transferred from other MSU programs ranked academic advising as the fourth most important factor. Overall, academic advising was ranked the fourth

important factor for respondents' decision to enter the CANR program. Again, the same reason for judging the opportunity for internships may apply here for the transfer students from within MSU because they might have heard about the better quality of academic advising from their peers in the CANR compared to their former major departments. Findings of the third and fourth paper in this dissertation also indicate that respondents were very satisfied with academic advising services in the CANR at MSU. The fourth paper in this dissertation indicates that the focus group participants who were transfer students were more satisfied with academic services in the CANR than they were with those they received in their former academic departments.

Recommendations of friends, alumni and family members appeared as the fifth most important factors. Respondents from other colleges/universities and MSU's other programs rated recommendations of friends, alumni, and family equally as the fifth important factor influencing their decision to join the CANR program. However, the respondents who entered to the CANR program directly from high school ranked them as the fourth important factor, which suggests that first time applicants were much more influenced by their parents, peers, and alumni than were the respondents who were not first -time enrollees. The results for the respondents who entered directly from high school are similar to the findings of Robinson et al. (2007). In their study, parent or guardian and friend in college were ranked the third and fourth most influential people in the college choice decision for first-time enrollees. Similar results were obtained by Esters and Bowen (2005) and Reis and Kahler (1997) about factors influencing ^aSricultural education students when making their career decisions.

(185<u>)</u> mi <u>k:</u> . XX άģ ksy X. Ĩ 12 341. 1941. i. Į0., 534 4 <u>1</u>80 Opportunity for study abroad was perceived very differently by different groups of respondents. Respondents directly from high school ranked it as the fifth most important factor, whereas the respondents from other colleges/universities and community colleges ranked it as the tenth and eleventh most important factor in their decision to join a CANR program. Respondents from MSU's other programs ranked it as the seventh most important factor. Overall, opportunity for study abroad was ranked as the sixth most important factor for respondents' decision to enter into a CANR program.

Scholarship/financial aid was also ranked the sixth most important factor overall. Respondents directly from high schools and community colleges perceived scholarship/financial aid to be a more important factor than did respondents from other colleges/universities and transfer students from within MSU. For transfer students from other programs at MSU, scholarship/financial aid was one of the least important factors in their decision to join a CANR program. A similar result was found by Rocca and Washburn (2005) that high school matriculants were more influenced by scholarships awarded than were transfer matriculants in their agriculture college choice decisions at the University of Florida. A study of factors affecting transfer decisions of community college students in Michigan revealed that of the students who were planning to transfer, 38% were expecting financial aid from four-year colleges (Monroe and Richtig, 2002). However, Hodges and Barbuto Jr. (2002) found that financial aid was one of the most influential factors for recruiting rural and urban high school students.

Clubs and extracurricular options were ranked the eighth most important factor by **the respondents** who entered directly from high schools and transfer students from within **MSU**. This was perceived to be a more important factor by respondents who transferred

from community colleges than by the respondents who transferred from other colleges/universities. Overall, clubs and extracurricular activities ranked seventh of the sixteen factors. The focus group study of graduating seniors in the CANR at MSU (the fourth paper in this dissertation) found that extracurricular activities conducted by the student clubs, such as Forestry Club, Park and Recreation Club, Fisheries and Wildlife Club, and Horticulture Club, were very important for hands-on learning and developing employable skills in the CANR students at MSU.

Personal/family reasons and opportunity to get involved in research activities were equally ranked as the eighth most important factor overall. Respondents within the groups and between the groups perceived these factors almost equally.

Credit evaluation and transfer were ranked the third most important factor by the respondents who entered from community colleges and the fourth most important factor by respondents who transferred from other colleges/universities. Transfer students from within MSU ranked credit evaluation and transfer as the sixth most important factor. However, it was one of the least important factors for respondents who entered the CANR programs directly from high school; this is likely the case because not many high school students join the college with transfer credits. Although it was ranked as the ninth most important factor overall, it was among the top four most important factors for transfer students. A focus group study of the graduating seniors in the CANR at MSU revealed that transfer students were very satisfied with the academic advisors because they helped them transfer all the credits they had earned in their former colleges or departments. This indicates that easy credit evaluation and transfer is one of the most important factors for transfer students deciding to enter a CANR major. It was one of the

1 1 Ţ, .) • • 4 1 . • . . . н. Ц . Y ĥţ i) N . . . themes raised by the respondents in Monroe and Richtig's (2002) study of factors affecting transfer decisions of community college students in Michigan that four-year colleges should accept credits earned in community colleges and make the credit transfer process easy.

Class size and opportunity for service learning ranked the tenth most important factor for respondents in their decision to enter a CANR program. Both factors were almost equally ranked by respondents within and across the groups. Other studies also found that class size was one of the least important factors for prospective students choosing an agriculture college major (Robinson et al., 2007; Rocca and Washburn, 2005; Washburn et al., 2002). However, Rocca and Washburn (2005) found that class size was a more important factor for students entering the University of Florida directly from high school than it was for transfer matriculants.

Faculty member contact, 4-H/FFA background, and ineligibility for their **preferred** major at MSU were the least important factors in deciding CANR major. **Results** indicate that the 4-H and FFA background of respondents was the least important **factor** for making the decision to choose an agriculture major. However, it is important **to note** that the percentage of respondents who had a 4-H and FFA background in the **total** response was nearly a quarter (24.4%), compared to more than three quarters of **respondents** who did not have a 4-H and FFA background; thus, the mean ranking was **skewed** to the least important factors. A separate analysis was run only for the **respondents** with a 4-H and FFA background for important factors in deciding the CANR **major** (Appendix H). The results revealed that having a 4-H and FFA background was a **Very** important factor; thus, it ranked as the second most important factor in deciding a

CANR major by the respondents who had a 4-H and FFA background. A recent study by Williams et al. (2008) found that related clubs or organizations were rated as the five highest rated influencing factors for agriculture students choosing an academic major at Texas Tech University.

Overall, three factors: academic program or curriculum, institutional reputation of the CANR, and opportunity for internships were the top three important factors for respondents in deciding to enter into a CANR program.

Conclusions and Recommendations

Colleges of Agriculture have been competing with one another to recruit and retain high quality students to meet the increased demand of trained labor force in the agricultural and natural resource management marketplace. Because of competition arrong higher education institutions for students and increasing costs of college education, prospective students have alternative choices for selecting the appropriate educational institutions of their best match based on their personal academic aspiration and ability, financial condition, and other factors. A myriad of factors—student's Personal and family characteristics, institutional characteristics and academic program characteristics—influence the decisions of prospective students when selecting a college. Thus, it is important to understand student characteristics, sources of information they utilize, and important factors that influence their decision to select a college.

recruiting new students.

This paper is aimed at understanding the demographic profile of the **undergraduate** students in the CANR at MSU and identifying the routes by which they

entered into the college programs, sources of information used to learn about the programs, and factors influencing their decisions to choose college majors within the CANR at MSU. Study findings may help college administrators and recruiting officers devise more effective strategies for recruiting high quality students.

Analysis of the demographic data showed that a high majority of the respondents in this study were females, white-Caucasians, from suburban or urban communities, and residents of the state of Michigan. Less than a quarter of the respondents had participated in 4-H and FFA activities, which indicated that large majority of respondents did not have a background working in agriculture related clubs and organizations or prior experience in agriculture. The demographic characteristics of respondents in this study are similar to other study findings in terms of ethnicity and gender (Peiter et al., 2004; Dyer et al., 2002; Dyer et al., 1996). Dyer et al. (1996) reported that respondents with membership in 4-H and FFA were 27.3% and 13.8%, respectively, in their study in the **Coll**ege of Agriculture at University of Illinois. However, the residential background and membership in 4-H and FFA revealed in this study are dissimilar with those found in the study of Peiter et al. (2004), who reported that majority of freshmen students majoring in **agriculture** in the University of Kentucky had a farm background with prior agricultural work experience, completed high school agricultural education, and were members of 4-H and FFA.

The research studies have shown that students' demographic characteristics are **related** to retention and subsequent completion of degrees in agriculture. Dyer et al., (2002) predicted that students who had prior experience in agriculture, completed high **school** agriculture courses, were members of 4-H and/or FFA, and lived in rural

communities were more likely to complete a degree in agriculture than were freshmen who did not have those characteristics. Dyer et al. (1999) reported that 97% of the agriculture freshmen at Iowa State University who had completed high school courses intended to graduate with agriculture major. Similarly, Dyer et al. (1996) found that of students who had completed some high school agriculture courses, 95% intended to graduate with a major in agriculture, and that of the respondents who were members of FFA, 98% intended to graduate with a major in agriculture. Similarly, 86% of the respondents who were members of 4-H indicated that they intended to graduate with a degree in agriculture. Cole and Fanno (1999) found that students with lower involvement with agricultural clubs and activities had higher dropout rate from the College of Agricultural Sciences at Oregon State University. Cole and Fanno recommend that **co**lleges of agriculture recruit a higher percentage of students with 4-H and/or FFA

Therefore, given the demographic characteristics of respondents in the CANR at **MSU** and based on the previous research findings, it is recommended that the CANR **develop** strategies to promote Agriscience studies in high schools and recruit more **students** who have prior experience in agriculture, have taken agriculture courses in high **schools**, and were members of 4-H and FFA.

There are four major sources of students for the CANR: transfer students from Within MSU (41%), students entering the CANR directly from high schools (36.2%), Students from community colleges (13.3%), and transfer students from other colleges and Universities (8.2%). Among these entrants, it is easier to identify and target students from high schools and community colleges than transfer students from other

colleges/universities and from within MSU. Thus, recruitment officers in the CANR should target high school students and community college students by working with high school teachers/counselors and community college transfer counselors.

Family and friends were the most influential individuals as sources of information for prospective students in the CANR at MSU, followed by websites, and printed materials. These findings are consistent with the findings of other studies (Williams et al., 2008; Robinson et al., 2007; Bobbit, 2006; Rocca and Washburn, 2005; Peiter et al., 2004; Washburn et al., 2002; Cole and Thompson, 1999). Campus visits ranked the fourth most frequently used source of information, and it was asked for the first time in the 2008 survey year. Studies showed that the campus visit is one of the most important and widely used sources of information for first time enrollees (Robinson et al., 2007; Bobbit, 2006; Rocca and Washburn, 2005; Peiter et al., 2007; Bobbit, 2006; Rocca and Washburn, 2005; Peiter et al., 2007; Bobbit, 2006; Rocca and Washburn, 2005; Peiter et al., 2004; Washburn et al., 2007; Bobbit, 2006; Rocca and Washburn, 2005; Peiter et al., 2004; Washburn et al., 2007;

i) work with parents and guardians of prospective students to provide accurate information about college majors,

ii) work with the college alumni network,

iii) update college websites regularly and make them more interactive and informative,

 $i \mathbf{v}$ distribute college brochures to high school and community college students, and

v) promote campus visits for the prospective students and their parents and guardians.

Academic program/curriculum, reputation of the CANR at MSU, and opportunity for internships were the top three important factors influencing students' decision to enter the CANR majors at MSU. Other important factors influencing respondents' decisions to
enter CANR majors were academic advising; recommendations of friends, alumni, and family members; opportunity for study abroad; scholarships and financial aid; and clubs and extracurricular activities. Recommendations of friends, alumni and family members were more influential to respondents who entered the CANR directly from high school than they were for other entrants. Credit evaluation and transfer and scholarships and financial aid were more important factors for respondents who transferred from corrunnuity colleges than they were for other entrants. The 4-H/FFA background was very important factor for deciding the CANR major for respondents who were former members of 4-H and FFA.

Based on these conclusions, the following recommendations are made:

i) The CANR should continue offering the current academic programs, update curricula and develop new programs that may attract students from various fields of study.

Maintain the institutional reputation of the CANR at MSU through quality teaching,
 academic advising, and innovative research and community services.

The CANR should work closely with potential employers and find more
 Pportunities for student internships.

The CANR should work with transfer counselors and advising officials at community
College transfer centers to inform community college students about the transfer process,
College transfer centers to inform community college students about the transfer process,
College transfer centers, programs, and prospects of higher education in agriculture. Transfer
College transfer need help in credit transfer and applying for scholarships and financial aid.
The CANR recruiting officer should work closely with key persons, such as
College transfer teachers, the State Supervisor for the Agriscience Program, the local FFA



chapters, and different levels of 4-H agents and club leaders, to facilitate college application process, especially for 4-H and FFA members.

3 j. ũ ĺ

Ĵ,

REFERENCES

- Blank, S. C. (1998). A Decade of Decline and Evolution in Agricultural Economics Enrollments and Programs, 1985-96. *Review of Agricultural Economics 20*(1): 155-167.
- Bobbitt, R. K. (2006). Factors influencing recruitment, retention, and job placement in the College of Agricultural Sciences and Natural Resources at Texas Tech University. Agricultural Education and Communications, Unpublished master's thesis, Texas Tech University-Lubbock.
- **Brad**burn, E. M., Hurst, D. G. & Peng, S. (2001). Community College Transfer Rates to 4-year Institutions Using Alternative Definitions of Transfer. National Center for Education Statistics, U.S. Department of Education.
- **Butler**, E. S., Aasheim, C. & Williams, S. R. (2004). Internet Access and Usage Patterns of College-Bound High School Students in Southeast Georgia. *Issues in Information System 5*(1): 49-55.
- Chapman, D. W. (1981). A Model of Student College Choice. The Journal of Higher Education 52(5): 490-505.
- Cole, L. & Thompson, G. W. (1999). Survey of Current Students: Implications for Recruitment and Retention. *NACTA Journal* 43(3): 15-20.
- **Cole**, R. L. & Fanno, W. (1999). Survey of Early Leavers: Implications for Recruitment and Retention. *NACTA Journal 43*(1): 53-56.
- Freshmen Toward Agriculture. Journal of Agricultural Education 40(2): 1-10.
- Ser, J. E., Breja, L. M. & Wittler, P. S. H. (2002). Predictors of Student Retention in Colleges of Agriculture. In G. Miller (Ed.), 21st Century Research for Agricultural Education: Vol. 27. 27th Annual National Agricultural Education Research Conference (pp. 490-500). Ames: Iowa State University Press.
- Yer, J. E., Lacey, R. & Osborne, E. W. (1996). Attitudes of University of Illinois College of Agriculture freshmen toward agriculture. *Journal of Agricultural Education* 37(3): 33-42.

- Eddy, P. L., Christie, R. & Rao, M. (2006). Factors affecting transfer of "traditional" community college students. *The Community College Enterprise*: 73-92.
- Esters, L. T. & Bowen, B. E. (2005). Factors Influencing Career Choices of Urban Agricultural Education Students. Journal of Agricultural Education 46(2): 24-35.
- Gardner, P. (2008). *Recruiting Trends 2008-2009*. The Collegiate Employment Research Institute and the MSU Career Services Network at Michigan State University, East Lansing.
- Hansen, N., Ward, S., Khosla, R., Fenwick, J. & Moore, B. (2007). What Does Undergraduate Enrollment in Soil and Crop Sciences Mean for the Future of Agronomy? Agronomy Journal 99(4): 1169-1174.
- **Hodges**, T. D. & Barbuto Jr., J. E. (2002). Recruiting Urban and Rural Students: Factors Influencing the Postsecondary Education Institution Choices of Rural Versus Urban High School Students. *College & University Journal*: 3-10.
- Hoyt, J. E. & Brown, A. B. (2003). Identifying College Choice Factors to Successfully Market Your Institution. College & University Journal 78(4): 3-10.
- Litten, L. H. (1982). Different Strokes in the Applicant Pool: Some Refinements in a Model of Student College Choice. Journal of Higher Education 53(4): 383-402.
- **User**, T. L. (2001). Factors influencing the enrollment of minority students in agricultural science programs at Virginia Tech. *Dissertation Abstracts International, 62* (02), 488A. (UMI No. AAT 3006097)
- Manderscheid, L. V. (1988). Undergraduate Educational Opportunities in the Face of Declining Enrollments. American Journal of Agricultural Economics 70(5): 985-993.
 - Callister, D. L., Lee, D. J. & Mason, S. C. (2005). Student Numbers in Agronomy and Crop Science in the United States: History, Current Status, and Possible Actions. NACTA Journal 49(3): 24-29.
 - **N**ichigan State University. (2009). Students Enrolled Percentages of Change UN, GR, AT, EL by College. Retrieved February 5, 2009, from

http://www.reg.msu.edu/reportserver?/ROReports/CE-StuEnrPctChngUN&term_seq_id=1054.

- Monroe, A. M. & Richtig, R. E. (2002). Factors affecting transfer decisions. The Community College Enterprise: 19-39.
- NCI-IEMS. (2007). College-Going Rates of High School Graduates Directly from High School. The National Center for Higher Education Management Systems. The National Center for Higher Education Management Systems. Retrieved August 13, 2008, from http://www.higheredinfo.org/dbrowser/index.php?submeasure=63&year=2004&l evel=nation&mode=data&state=0.
- Peiter, R. L., Coffey, D., Morgan, J. A. & Kantrovich, A. (2004). University Freshmen Attitudes Regarding Decisions to Attend University Programs of Agriculture in Kentucky. Journal of Southern Agricultural Education Research 54(1): 207-218.
- **Pope**, M. L. & Fermin, B. (2003). The Perceptions of College Students Regarding the Factors Most Influential in Their Decision to Attend Postsecondary Education. *College & University*: 19-25.
- Powers, M. N. (2000). Factors in Choosing Landscape Architecture as a Major: A National Student Survey. Unpublished master's thesis, Faculty of the Virginia Polytechnic Institute & State University-Blacksburg.
- **Pratt**, P. & Evans, D. (2002). Assessment of the Utility of Parents as Sources of Information About the College Decisions of Their Children. *College & University Journal*: 9-12.
- Reis, R. & Kahler, A. A. (1997). Factors influencing enrollment in agricultural education programs as expressed by Iowa secondary Agricultural Education Students. Journal of Agricultural Education 38(2): 38-48.
 - Robinson, J. S., Garton, B. L. & Washburn, S. G. (2007). The Influential Factors Firsttime Enrollees Utilize When Choosing a College of Agriculture. NACTA Journal 51(2): 27-33.
 - Rocca, S. J. & Washburn, S. G. (2005). Factors Influencing College Choice of High School and Transfer Matriculants into a College of Agriculture. NACTA Journal 49(1): 32-38.

- Rocca, S. J. & Washburn, S. G. (2007). Comparison of Factors Influencing the College Choice of FFA and Non-FFA Members into a College of Agriculture. In G. E. Briers and T. G. Roberts (Ed.), Vol. 34. 2007 AAAE Research Conference (pp. 402-414). College Station: Texas A&M University Press.
- Scoffield, G. G. (1995). College of Agriculture New Student Profile. Paper presented at the Central Region 49th Annual Research Conference, St. Louis, MO.
- Segler-Conrad, E., Joerger, R. M. & Leske, G. (2004). Forms of Communication and Individuals that Influenced Freshmen Students when Selecting an Agricultural Education Major and A College of Agriculture. Paper presented at the 31st National Agricultural Education Research conference, St. Louis, MO.
- Sivapirunthep, P. (2000). A study of selected characteristics and attitudes toward agriculture of undergraduate agriculture majors at Mississippi State University in 1999. Dissertation Abstracts International, 61 (04), 1322A. (UMI No. AAT 9970339)
- United States Department of Education (1996). *Digest of Education Statistics*. United States Department of Education, National Center for Education Statistics, Washington, DC.
- **United** States Department of Education (2007). *Projections of Education Statistics to 2016.* (NCES 2008-060). United States Department of Education, National Center for Education Statistics, Washington, DC.
- Shburn, S. G., Garton, B. L. & Vaughn, P. R. (2002). Factors Influencing College Choice of Agriculture Students College-Wide Compared with Students Majoring in Agricultural Education. Paper presented at the 29th National Agricultural Education Research, Las Vegas, NV.
- Illiams, K., Fraze, S., Burris, S., Akers, C. & Green, C. (2008). External Factors Influencing Choice of Academic Major: A Comparison of Agricultural and Non-Agricultural Students. In B. K. Warnick and R. S. Tarpley (Ed.), Agricultural Education at a Higher Elevation: Vol. 27. 2008 Western Region AAAE Research Conference (pp. 115-127). Logan: Utah State University Press.

CHAPTER III

UNDERGRADUATE STUDENTS' USE OF TIME IN THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY

Introduction

College students' time use has been a concern of administrators, professors, academic advisors, and parents or guardians alike. Time is an important resource for all, but it is considered a critical resource for students' successful performance. Meredeen (1988) indicated that the secret of survival and success at college can be largely defined in terms of how well student organizes his or her time. Managing time is a challenge for many college students. Unlike high school students, college students have less in-class time and more outside-of-class work. Many college students may find their academic life very stressful (Macan et al., 1990).

College students' time management is directly correlated with academic **Performance** and stress. There is a universal assumption that college grades are affected **by** the amount of time spent on study; however, the relationship between college grades **and** quantity of time spent on study has not been fully established yet. Schuman et al. **(1985)** found a very small relation between college grades and amount of study. Britton **and** Tesser (1991) found that two time management components—short-range planning **and** time attitudes—were significant predictors of cumulative grade point average and

Time management is a skill, and it can be taught to students to make them more Fective learners (Trueman and Hartley, 1996; Macan, 1994). Macan et al. (1990) found that students who perceived control of their time reported greater evaluations of their

••• Included that time management practices may have an positive effect on college grades.

performance, greater work and life satisfaction, less role ambiguity, less role overload, and fewer job-induced and somatic tensions. Research has shown that time management is a better predictor than Scholastic Aptitude Test (SAT) scores to predict college performance, i.e. grade point average (Britton and Tesser, 1991).

Since time management and college performance have a causal relationship, understanding undergraduate students' time use is essential for college administrators, academic advisors, and parents to make sure that students are making balanced use of time and progressing toward accomplishing their personal and professional goals. Research in students' time use is especially limited in the colleges of agriculture, except a study done by Gortner and Zulauf (2000), who studied undergraduate students' use of time in agricultural economics courses at Ohio State University. In an effort to better understand this under-developed field, this study focuses on the undergraduate students' time use in the CANR at MSU. Findings of this study may be useful to college administrators, academic advisors, and parents, as well as assisting students become **Engaged** learners and facilitate comprehensive development.

Objectives

The general objective of this study was to seek information on how current Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize their time on various academic and Concerning the CANR utilize the concerning the co

determine weekly time use profiles of CANR students in academic and nonacademic
 activities,

2. compare time use of the CANR students at MSU with the National Survey of Student Engagement (NSSE) study,

3. determine similarities and differences in time use patterns by selected demographic characteristics of respondents such as academic level, sex, ethnicity, residence, and participation in 4-H/FFA and the member status in National Honor Society during high school.

Methodology

College students' time use has been studied by several researchers. Researchers have often recommended and used the time diary method to measure use of time (Gortner and Zulauf, 2000; Robinson and Godbey, 1997). Robinson and his colleagues consider the time diary to be the gold standard of time management, but (Jacobs, 1998) maintains that self-reported measure of working time is an alternative to the time diary measure because it is simple and as accurate as time diary measure. He found no patterned discrepancies between the two measures, but unlike self-reported measures, time diary measures are an extremely data-intensive research strategy for measuring use of time. This study utilized the self-reported time use (hours per week) of the undergraduate Students in the CANR at MSU.

This was a descriptive study using an online survey. Online surveys have been **Sain**ing popularity in social survey and educational research for their cost effectiveness in **data** collection and data entry, speed of data access, and ease in processing and managing **data** received in electronic form (Kaplowitz et al., 2004; Sax et al., 2003; Couper, 2000; **D**uffy, 2000). However, online surveying has its own limitations and shortcomings, such **as** generalizability, low response rate, sampling, and handling non-response bias (Sax et

a1., 2003; Couper, 2000). To address these limitations, some researchers have suggested
employing mixed-mode strategies to minimize non-response issues (Kaplowitz et al.,
2004; Sax et al., 2003; Dilman, 2000).

This survey adopted the "time use" section of the survey instrument used in the **National** Survey of Student Engagement (NSSE), developed by Indiana University, (**NSSE**, 2004). For the purpose of this survey, the response item scales of the NSSE **survey** instrument were modified with self-reported approximate hours used per week **instead** of scales of time use. Respondents were asked to indicate the approximate **number** of hours they spend per week in seven major activities: preparing for class, **work**ing for pay on-campus and off-campus, participating in co-curricular activities, **relax**ing and socializing, providing care for dependents, and commuting to class.

Preparing for class included activities such as studying, reading, writing, doing homework or lab work, analyzing data, researching and other academic activities. Cocurricular activities included student organizations activities, campus publications, social fraternities or sororities, and intercollegiate or intramural sports. Providing care for dependents was defined as taking care of parents, children, or a spouse. The modified survey instrument was circulated to the CANR Assessment Committee members to ascertain its content and face validity.

The population of this study consisted of all undergraduate college students in the ANR during 2004 to 2008. Data were collected using an on-line survey during March-Pril of each study year. An e-mail list maintained by the Office of the Dean served as the sampling frame for this study. The online survey was sent to 2,565 students in 2004; 2,439 students in 2005; and 1,997 students in 2006; 2,406 students in 2007, and 2,311

students in 2008. Two reminder e-mails were sent to the survey population to increase survey response rates.

A total of 2,803 usable responses (i.e., 764 students in 2004; 228 students in 2005; and 500 students in 2006; 525 in 2007; and 786 in 2008) were received. The average five-year survey response rate was 24.5 percent. In 2004, free ice cream coupons were provided as an incentive to complete and submit the survey. No such incentive was provided in 2005. Response rates dropped significantly in 2005, so the ice cream incentive was again offered to survey respondents in 2006, 2007, and 2008.

Data were accessed from a Web-based database and exported into SPSS for Windows 15.0 for analysis. Descriptive statistics—including frequency counts, percentage, mean, and standard deviation—were used to present findings. One-way analysis of variance (ANOVA) and independent sample t-tests were used to determine whether the weekly time use in various activities differed significantly by students' demographic characteristics. The level of alpha for significance was set at 0.05.

Results and Discussions

Description of the respondents

Of the 2,803 respondents, about 15% were freshmen, 25% were sophomores, 40% Cre juniors and 22% were seniors. About seven percent of the respondents indicated that they had a second major, and little more than ten percent had second degrees. By Sex, 64% of the respondents were female. The age of respondents ranged from 18 to 58 Years. The mean age of respondents was 21 years. When segregating the respondents by age, traditional age undergraduates (18 to 24 years old) constituted 93.3% of the total respondents. Nearly ninety percent (87.1%) of respondents were white and the rest were Hispanic followed by African-American, Asian-American, Native-American and others. More than half (54.6%) of the respondents indicated that they came to the CANR from sub-urban or urban communities. In-state respondents comprised little more than ninety percent (91.7%) of the total respondents. About a quarter (24.4%) of the respondents had participated in 4-H and FFA. Over half of the respondents (55.3%) indicated that they were members of the National Honor Society in high school.

Use of time by respondents

i) Time spent on preparing for class

Preparing for class included studying, reading, writing, doing home work or lab work, analyzing data, researching, and other academic activities. Analysis of the data indicated that almost all of the respondents (99.99%) spent some time preparing for class. Respondents spent an average of 15.2 hours/week on preparing for class (Table 8). Time use patterns over the five-year period indicated that time spent on preparing for class has been increasing. The time used for preparing for class in this study is similar to that of United State Department of Labor (2007) study for full-time university and college Students' time use (16 hours per week) for educational activities from 2003 to 2006. The finding of this survey for time use for academic activities is also close to a time management study of students of the Literature, Science and Arts College at the University of Michigan conducted by Schuman et al. (1985), who found that the median Study time was 14.5 hours/week (2.9 hours per weekday). But time use in preparing for **Class** in this study is far less than the undergraduate students' time use (21.3 hours/week) in three agricultural economics courses at Ohio State University as studied by Gortner **and** Zulauf (2000).

(hours/week)
v year
SUIVE
-p
ISC
time
weekly
Respondents'
Table 8.

	S	tal			Su	urvey Year				1.00	F	
Assistant	1	004		2005		2006		2007		2008	-	otal
ACUVINES	u	Mean	u	Mean	=	Mean	=	Mean	-	Mean	-	Mean
		((1)())		(US)		(02)		(2D)		(N)		(N)
Dranaring for clace	756	12.8		14.8	100	15.4	505	17.4	002	16.0	CSEC	15.2
	201	(8.6)	777	(10.0)	101	(11.0)	200	(13.5)	100/	(11.8)	7617	(11.2)
Working for not on commu-	020	13.9	70	13.5	200	13.8	210	13.5	200	13.0	1177	13.5
WUINING IOI pay OII-callipus	000	(6.7)	00	(7.3)	107	(7.5)	017	(6.4)	070	(5.7)	C/11	(9.9)
Working for non off comments	010	17.6	00	19.7	100	15.7		16.7	0.00	16.2	1001	16.9
working tot pay our-campus	710	(9.6)	60	(11.3)	100	(8.9)	601	(8.6)	700	(8.9)	1004	(6.3)
Participating in	660	6.7	156	6.8	157	5.5	720	5.7	133	6.0	1007	6.1
co-curricular activities	700	(6.9)	001	(8.0)	700	(2.6)	0/0	(6.2)	100	(6.4)	1961	(6.5)
Delouine and socializing	740	16.0	310	15.1	004	16.1	103	16.0		16.9		16.2
NCIAMING AILU SOCIALIZING	/40	(11.5)	C17	(11.6)	4/4	(15.8)	+0C	(12.2)	1//	(12.5)	11/7	(12.8)
Drouiding one for denandants	07	13.7	2.4	15.0	77	11.4	02	10.7	201	9.8	100	11.6
	16	(18.9)	+0	(18.7)	00	(12.9)	61	(13.8)	171	(15.3)	CU4	(16.0)
Committing to class	756	4.4	212	5.2	107	5.6	2005	5.0	760	5.0	11120	5.0
	n	(3.2)	C17	(3.2)	701	(2.7)	8	(3.5)	201	(3.8)	11/7	(4.0)

In conclusion, the amount of time spent in academic activities by the respondents

in the CANR is substantially less than the amount of time spent on educational activities by students in other studies. However, the required amount of time to be spent in academic preparation may vary by nature of subjects or college majors. For example, students of medical science and engineering may require spending more time on study compared to the students of agriculture science or liberal arts.

ii) Time spent on working for pay

Respondents were asked to indicate the approximate number of hours per week they spent on working for pay on and off-campus. Over half (57%) of the respondents indicated that they did not work on-campus. Similarly, 62.2% of the respondents inclicated that they did not work off-campus. Of those students working, they spent 13.5 hours/week working for pay on-campus and 16.9 hours/week working for pay off-campus (Table 8). With regard to time use on work, respondents' combined (on-campus and off**cam**pus) work hours was 17 hours per week, which is more than the undergraduate students' time use (12.3 hours/week) in Gortner and Zulauf's (2000) study. Similarly, the **work** hours (on-campus and off-campus combined) in this study are higher than the national statistics on college students' work hours which are 14 hours/week, according to the U.S. college students time use report 2003-2006 (United State Department of Labor, **2007**). Respondents' use of time (17 hours/week) on both types of work is little less than half the amount of time spent by the employed part-time workers (37.5 hours/week) in USA (United State Department of Labor, 2008). It is important to note that respondents ^S**Pent** more time working (17 hours/week) than they did for academic activities (15.2 hours/week). The reason respondents spent more time on work could be due to the rising

cost of tuition and other living expenses in the recent years. Today's college students are **work**ing more than before, and this rise in work follows a trend of increasing tuition **costs**. According to a recent national survey of American freshman, nearly 50% of **respondents** plan to work to meet their college expenses (Higher Education Research **Institute**, 2009).

iii) Time spent on participate in co-curricular activities

Participation in co-curricular activities included involvement in student **organizations**, campus publications, student government, social fraternity or sorority, **inter**collegiate or intramural sports. Analysis of the data indicated that little more than a **quarter** (27.2%) of respondents did not participate in co-curricular activities. Nearly **three**-quarter (73.8%) of respondents participated in co-curricular activities spending **about** six hours per week on these activities.

iv) Time spent on relaxing and socializing

Relaxing and socializing included watching TV, exercising and other social activities such as partying. Almost all of the respondents indicated that they spent some time on relaxing and socializing. On average, respondents spent 16.2 hours/week relaxing and socializing (Table 8). Another notable finding of this study is that respondents spent more time relaxing and socializing (16.2 hours/week) than they spent academic activities (15.2 hours/week).

The U.S. full-time university and college students' time use on leisure and sports **as** 19.5 hours/week (United State Department of Labor, 2007). Gortner and Zulauf **CO00**) reported 19 hours/week in planned leisure and recreation activities and 10.3 **hours/week in watching TV for undergraduate students in agricultural economics in the**

Ohio State University. The average annual time use on leisure and sports for an American was 38.5 hours/week in 2007 (United State Department of Labor, 2008).
Although it seems that respondents in this study spent more time on relaxing and socializing than they did spend time on preparing for class, respondents of the CANR at MSU spent less time relaxing and socializing compared to other U.S. college students.

v) Time spent on providing care for dependents

Respondents were asked to indicate the approximate hours/week they spent on taking care of dependents living with them. Out of 2,709 respondents who replied to this activity, 2,306 (85.1%) indicated that they did not spent anytime providing care for dependents. Only 15% of the respondents indicated that they spent an average of 11.6 hours/per week providing care for dependents living with them (Table 8). Respondents' time use in providing care for dependents had the largest variation as indicated by the highest standard deviation of 16.0.

According to the National Survey of Student Engagement (NSSE) 2008 study, the time use statistics for providing care for dependents for agricultural and natural resources respondents was 1 to 5 hours per week (personal communication with NSSE staff, August 28, 2008). The respondents in this study spent more than twice the amount of time spent providing care for dependents as compared to the respondents of agricultural and natural resources of NSSE 2008 study.

In 2007, an average time use caring for household members in U.S. was 14.6 **hours/week** (United State Department of Labor, 2008). Being students, respondents of **this** study had spent little less time caring household members than the survey **respondents** of the American Time Use survey in 2007. It is interesting to note that respondents spent two times as much time on dependent care as compared to cocurricular activities.

vi) Time spent on commuting to class

The high majority of respondents (98.5%) indicated that they commute to class. The average commuting time for five-year study period is 5 hours/week. The finding of this study is consistent with the NSSE study 2008, which indicated an average commuting time as 1 to 5 hours per week for agriculture and natural resources respondents (personal communication with NSSE staff, August 28, 2008). According to the college students and time use, 2003-2006 report, full-time university and college students travelled for 7.5 hours/week during the weekdays (United State Department of Labor, 2008). The finding of this study on average commuting time indicated that the CANR students spent less time commuting than did the average university and college students in the U.S.

In summary, the aggregate time use statistics indicated that the respondents spent TOTE time working for pay off-campus (16.9 hrs/week) and relaxing and socializing (16.2 hrs/week) than they did spend time for preparing for class (15.2 hrs/week).

Comparison of time use between the CANR and NSSE study

The second objective of this study was to compare the findings on time use between the CANR study at MSU and the NSSE study. To accomplish this objective, the Associate Director, Research and Data Analysis at Indiana University Center for Postsecondary Research was requested for special analysis of time use data for the agriculture and natural resources (ANR) respondents and respondents from other academic majors. It is important to note that the scale of the time use measurement was different between the CANR study at MSU and the NSSE study. The time use data for the CANR study at MSU was gathered in a ratio scale (approximate number of hours per week) whereas the NSSE study collected data on time use in 8-point scales (1= 0 hour/week, 2= 1-5 hrs/wk, 3= 6-10 hrs/wk, 4= 11-15 hrs/wk, 5= 16-20 hrs/wk, 6= 21-25 hrs/wk, 7= 26-30 hrs/wk, and 8=more than 30 hrs/week). To make the findings more comparable, the CANR data at MSU were recoded adopting the same scale used in the NSSE study.

The statistics for time use profile for these two studies are presented in Table 9. The CANR respondents spent more time (mean=4.2) preparing for class than did ANR respondents (mean= 3.8) in NSSE survey. Although both means for CANR, MSU and ANR, NSSE fall under the same class interval (4= 11 to 15 hours/week), CANR, MSU mean of 4.2 indicates that its respondents spent more time in academic activities than did ANR, NSSE respondents. MSU's CANR respondents and NSSE's other respondents than ANR spent the same amount of time on preparing for class.

Similarly, CANR, MSU respondents spent more time (mean=2.2) working for pay Cn-campus than did both categories of NSSE's respondents (means: ANR=1.9, and Cther=1.7). It could be possible that MSU has provided more on-campus work Opportunities for its students than do other Colleges of Agriculture and Natural Resources in US. Unlike on-campus work, MSU's CANR students spent less amount of time (mean=2.6) working off-campus than did both ANR (mean=2.6) and Other (mean=2.6) respondents of NSSE study. It implies that either there are not many off-campus working Opportunities for CANR students in East Lansing as compared to the surroundings of Other Colleges of Agriculture and Natural Resources in US, or MSU has better on-

campus housing facilities and host more students at campus dormitories than do other

colleges. It is important to note here that MSU is one of the top colleges in US in terms

of its on-campus university housing capacity.

· · ·	Time Use (hours/week)						
A attivition		(CANR) ¹	NSSE	$E(ANR)^2$	NSSE	(Other) ³	
	n	Mean (SD)	n	4 Mean (SD)	n	4 Mean (SD)	
Preparing for class	780	4.2 (1.8)	5496	3.8 (1.5)	315876	4.2 (1.7)	
Working for pay on-campus	767	2.2 (1.6)	5498	1.9 (1.5)	315666	1.7 (1.4)	
Working for pay off-campus	751	2.2 (1.9)	5490	2.6 (2.3)	315480	2.9 (2.6)	
Participating in co-curricular activities	765	2.1 (1.2)	5498	2.7 (1.7)	315960	2.3 (1.6)	
Relaxing and socializing	772	4.3 (1.8)	5501	3.9 (1.6)	315836	3.6 (1.6)	
Providing care for dependents	754	1.3 (1.0)	5493	1.6 (1.4)	315411	2.0 (2.0)	
Commuting to class	774	2.4 (0.7)	5501	2.3 (0.9)	316185	2.2 (1.0)	

Table 9. Time use in the CANR study at MSU and the NSSE 2008 study

Foot Notes:

 Undergraduate Student Survey 2008, College of Agriculture and Natural Resources (CANR), Michigan State University, East Lansing.

 National Survey of Student Engagement (NSSE) 2008, Agricultural and Natural Resources respondents only. Indiana University, Bloomington.

3. National Survey of Student Engagement (NSSE) 2008, Other respondents

excluding Agricultural and Natural Resources. Indiana University, Bloomington.

Scale: 1=0 hrs/wk, 2= 1-5 hrs/wk, 3= 6-10 hrs/wk, 4= 11-15 hrs/wk,

5= 16-20 hrs/wk, 6= 21-25 hrs/wk, 7= 26-30 hrs/wk, 8= more than 30 hrs/wk.

Similarly, with regard to time use in co-curricular activities, the CANR

respondents at MSU spent less time (mean=2.1) than did respondents of ANR

(mean=2.7) and Other (mean=2.3) groups of NSSE study. It seems that students in other

Colleges of Agriculture and Natural Resources were more motivated to participate in

extracurricular activities than the students in the CANR at MSU.

With regard to time spent on relaxing and socializing, MSU's CANR respondents spent more time (mean=4.3) than did respondents of ANR (mean=3.9) and Others (mean=3.6) of NSSE study. Both the CANR at MSU and NSSE study results showed that agriculture students spent more time relaxing and socializing than they did spend on academic activities. Contrary to this, respondents in other academic majors spent more time (mean=4.2) preparing for class than relaxing and socializing (mean=3.6). This finding indicates that students in the College of Agriculture and Natural Resources spend more time partying, watching TV, and some other forms of socialization than do students in other academic majors.

Time use in providing care for dependents showed that CANR respondents at MSU spent less time (mean=1.3) than those of ANR (mean=1.6) and Other (mean=2.0) respondents of NSSE study. It may be possible that proportion of the CANR students living with their family could be smaller at MSU as compared to the respondents of the NSSE study.

In terms of commuting behavior, respondent in both studies spent almost the same ount of time, although the mean commuting time for CANR respondents at MSU is a little higher (mean=2.4) compared to the NSSE respondents: ANR (mean=2.3) and Other (mean=2.2).

Time use and demographic characteristics

The third objective of this study was to determine similarities or differences in time use profile by selected demographic characteristics of respondents. The results of One way analysis of variance (ANOVA) for time spent (hours/week) on various activities by academic level of respondents are presented in Table 10. The ANOVA results for

tine sp ÉSIS DD Riden N 363. sui, j व्याप्त tiere: L'aer rong ae pres I. au in di NGE : X. PUK ≥ ca∖ $\hat{M}_{0.5}$ 21735 time spent on each activity by academic levels of respondents are briefly described and discussed below.

i) Time spent on preparing for class.

Findings show that Freshman, Sophomore, and Junior spent almost the same arrount of time preparing for class. However, Seniors spent an hour less than did other academic levels of respondents. No differences were observed for amount of time spent on academic activities among different academic levels of respondents. The result of this study is dissimilar with the NSSE 2008 survey result in which freshmen spent more amount of time in preparing for class than did seniors (NSSE, 2008).

ii) Time spent on working for pay on-campus.

Analysis revealed that respondents were significantly (F=9.158, p<0.001)

different for spending time on working for pay on-campus by their academic levels. The Tukey's post hoc test was conducted for multiple comparisons to identify differences anong the academic levels of respondents. The results of Tukey's multiple comparisons are presented in Appendix I. The Tukey's post hoc test for multiple comparisons indicated that Seniors spent significantly (F=9.158, p<0.05) more time (15.0 hrs/week) than did Freshman (12.7 hrs/week) for pay on-campus. This result is consistent with the NSSE 2008 results in which Seniors spent more amount of time on working for pay on-Campus than did Freshmen. Similarly, Juniors spent more time (13.8 hrs/week) working for pay on-campus than did Sophomores (12.3 hrs/week). Post hoc test also revealed that Seniors spent more time (15.0 hrs/week) than did Sophomores (12.3 hrs/week) on on-Campus employment.

Activities	n	Hours/Week Mean (SD)	F value	p value
Preparing for class				
Freshman	379	15.7 (12.4)		
Sophomore	677	15.4 (11.0)	2.436	0.063
Junior	1091	15.5 (11.3)		
Senior	600	14.1 (10.3)		
Working for pay on-campus				
Freshman	142	12.7 (6.8)		
Sophomore	300	12.3 (5.9)	9.158	0.001***
Junior	475	13.8 (6.0)		
Senior	256	15.0 (7.8)		
Working for pay off-campus				
Freshman	97	13.9 (8.2)		
Sophomore	184	15.7 (8.6)	6.464	0.001***
Junior	450	17.4 (9.2)		
Senior	270	18.1 (10.1)		
Participating in co-curricular activities				
Freshman	247	5.8 (5.6)		
Sophomore	502	6.4 (6.9)	0.550	0.648
Junior	796	6.2 (6.7)		
Senior	440	6.0 (6.4)		
Relaxing and socializing				
Freshman	374	17.6 (14.3)		
Sophomore	667	16.7 (14.1)	3.153	0.024*
Junior	1078	15.4 (11.9)		
Senior	593	16.2 (11.6)		
Providing care for dependents				
Freshman	45	9.8 (14.4)		
Sophomore	82	7.8 (9.2)	3.614	0.013**
Junior	171	11.7 (15.3)		
Senior	105	15.2 (20.6)		
Commuting to class				
Freshman	372	5.3 (4.3)		
Sophomore	654	4.9 (4.5)	1.360	0.253
Junior	1082	5.0 (3.7)		
Senior	598	4.7 (3.7)		

Table 10. Time use (hour/week) by academic level of respondents in the CANR

* Significant at 0.05 level, ** Significant at 0.01 level, *** Significant at 0.001 level

iii) Time spent on working for pay off-campus.

Respondents were significantly (F=6.464, p<0.001) different from each other by their academic levels for their time use on working for pay off-campus. Post hoc multiple comparisons revealed difference between Freshman and Junior, Freshman and Senior, and Sophomore and Senior in terms of time spent on working for pay off-campus. Seniors spent more time (18.1 hrs/week) than did Freshmen (13.9 hrs/week) in working for pay off-campus. Similarly, Seniors spent more time than Sophomores (15.7 hrs/week) in working off-campus. Juniors spent more time (17.4 hrs/week) than Freshmen (13.9 hrs/week) in off-campus employment.

iv) Time spent on co-curricular activities.

An ANOVA result revealed no differences between the academic levels of respondents in time use on participating in co-curricular activities.

v) Time spent on relaxing and socializing.

An ANOVA result indicated a significant (F=3.153, p< 0.05) relationship between respondents' academic level and time spent on relaxing and socializing. Tukey's post hoc multiple comparisons showed difference between Freshman and Juniors for their time use on relaxing and socializing. Freshman spent (17.6 hrs/week) more time than did Junior (15.4 hrs/week) on entertainment.

vi) Time spent on providing care for dependents.

An ANOVA result showed a significant (F=3.614, p<0.05) difference between academic level of respondents and time spent on providing care for dependents. Tukey's post hoc test for multiple comparisons indicated that Seniors spent more time (15.2 hrs/week) than did Sophomores (7.8 hrs/week) taking care of their dependents. vii) Time spent on commuting to class.

An ANOVA result gave no difference between the variables academic level of respondents and commuting to class.

Overall, findings indicated that seniors spent more time on both employment: working on-campus and off-campus than did other participants. Also, Seniors spent more time on taking care of dependents than did other groups of respondents. It seems logical that seniors would be with their families, which demand more time for providing care for dependents as compared to freshmen. Also, being with family means more financial needs, thus, seniors have to spend substantially more amount of time on work to meet their family living expenses and so forth, which may have bearing on the availability of time for seniors for academic activities.

Freshmen spent more time than did other groups in relaxing and socializing activities. The result also indicates that freshmen spent more time on commuting than did other respondents. It may be possible that freshmen are staying with their parents or guardians, thus, they spent more time on commuting to class than did others. Seniors were more engaged in work and family responsibilities than did other groups of respondents.

One of the final objectives of this study was to determine if time use pattern varies by students' sex. There were significant differences between male and female respondents for time use for six out of seven activities (Table 11). Males were significantly different from females in time use in four out of seven activities. Whereas females were significantly different from males in spending time in two out of seven activities. Females respondents spent significantly (t =7.361, p < 0.001) more time (16.4

hours/week) on class preparation than did their male counterparts (13.1 hrs/week). Similarly, females spent significantly (t =2.800, p < 0.01) more time (5.1 hrs/week) on commuting to class than did males (4.7 hrs/week).

Male respondents spent significantly (t=2.683, p < 0.01) more amount of time (14.3 hrs/week) working for pay on-campus than did female respondents (13.2 hrs/week). Similarly, males spent significantly (t=3.877, p < 0.001) more time (18.3 hrs/week) on working off-campus than did females (16.0 hrs/week). With regard to participation in co-curricular activities, males spent significantly (t=3.492, p < 0.001) more time (6.8 hrs/week) than did females (5.8 hrs/week). Additionally, male respondent spent significantly (t=5.620, p < 0.001) more time (18.1 hrs/week) in relaxing and socializing than did female respondents (15.2 hrs/week). The results on time use by male and female on academic activities in this study is consistent with the findings of NSSE 2008 survey for ANR respondents (NSSE, 2008).

Activities	n	Hours/Week Mean (SD)	t value	p value
Preparing for class				
Male	990	13.1 (10.7)	7 261	0 001***
Female	1755	16.4 (11.3)	7.301	0.001
Working for pay on-campus				
Male	359	14.3 (6.9)	2 692	0.007**
Female	813	13.2 (6.4)	2.083	0.007**
Working for pay off-campus				
Male	398	18.3 (10.3)	2 077	0 001***
Female	603	16.0 (8.5)	3.8//	0.001
Participating in co-curricular activities				
Male	674	6.8 (7.6)	2 402	0.001***
Female	1307	5.8 (5.9)	3.492	0.001+++
Relaxing and socializing				
Male	975	18.1(14.7)	5 620	0 001***
Female	1735	15.2 (11.5)	5.620	0.001
Providing care for dependents				
Male	141	12.2 (16.4)	0.525	0.600
Female	261	11.3 (15.8)	0.525	0.600
Commuting to class				
Male	981	4.7 (3.5)	2 800	0.005**
Female	1723	5.1 (4.3)	2.800	0.003**

Table 11. Time use (hours/week) by gender of respondents

Significant at 0.01 level, * Significant at 0.001 level

Results of this study indicated that male students were significantly more involved in various activities than did female students, which shows that males had better time management skills than did female students. This finding is dissimilar with the findings of Trueman and Hartley (1996) who concluded that female students had significantly greater time management skills than male students. The findings of this study are also consistent with Agriculture and Natural Resources respondents of NSSE 2008 survey. It was interesting to note that male students reported spending more time (12.2 hours/week) in providing care for dependents than did female students (11.3 hours/week). The male respondents' time use in relaxing and socializing is also consistent with the findings of both studies Gortner and Zulauf (2000) and NSSE (2008). The American Time Use Survey 2007 results showed that men spent 39.9 hours per week compared to 35 hours per week for women in leisure activities such as watching TV, socializing or exercising (United State Department of Labor, 2008). The findings of Robinson and Godbey (1997) on time use by employed Americans, however, indicate that there was no difference in time use between men and women in watching TV for those between the ages of 18 to 24 years old.

Time use may differ by the sociocultural background of the student. To determine this difference, if it exists, respondents were grouped into two groups on the basis of ethnicity: white and Students of Color. In this study, "Students of Color" refers to all minorities including African American, Hispanic, Asian American, and Native American respondents. Student's t-test was used to determine differences in weekly time use by ethnicity. Findings indicate that no significant differences were observed between these two groups for time use in preparing for class; working for pay off-campus; participating in co-curricular activities; and providing care for dependents (Table 12).

There were significant differences between these two ethnic groups for weekly time use for working for pay on-campus (t=2.848, p < 0.01), relaxing and socializing (t=4.579, p < 0.001), and commuting to class (t=1.979, p < 0.05). Students of Color respondents spent significantly more amount of time (14.8 hrs/week) on working for pay on-campus than did their white counterparts (13.3 hrs/week). Whereas white respondents

spent significantly more amount of time (16.6 hrs/week) in relaxing and socializing as compared to Students of Color (13.3 hrs/week). Unlike white respondents, Students of Color significantly spent more time (5.4 hrs/week) on commuting to class. Table 12. Time use (hours/week) by ethnicity of respondents

Activities	n	Hours/Week Mean (SD)	t value	p value
Preparing for class				
White	2388	15.1 (11.0)	1 105	0.260
Students of Color	352	15.8 (12.3)	1.105	0.209
Working for pay on-campus				
White	990	13.3 (6.5)	2.949	0.004**
Students of Color	175	14.8 (6.9)	2.848	0.004**
Working for pay off-campus				
White	910	16.8 (9.3)	1 426	0 151
Students of Color	92	18.3 (9.8)	1.430	0.131
Participating in co-curricular activities				
White	1723	6.2 (6.7)	1 226	0 1 9 2
Students of Color	254	5.6 (5.0)	1.550	0.162
Relaxing and socializing				
White	2356	16.6 (13.1)	4 570	0.001***
Students of Color	350	13.3 (10.6)	4.579	0.001***
Providing care for dependents				
White	331	11.9 (16.6)	1 010	0 2 1 2
Students of Color	70	9.8 (12.7)	1.010	0.313
Commuting to class				
White	2357	4.9 (3.8)	1.070	0.049*
Students of Color	343	5.4 (5.1)	1.979	0.048*

* Significant at 0.05 level, **Significant at 0.01 level, *** Significant at 0.001 level

Although not statistically significant, Students of Color spent more time (15.8 hrs/week) on preparing for class than did white respondents. Findings in this study are consistent with the NSSE 2008 survey findings for ANR respondents (NSSE, 2008). According to the American Time Use Survey 2007 reports, the statistics for time use on educational activities for the civilian population aged 15 years and above reported: 2.8 hours/week for White and 3.7 hours/week for Hispanic or Latino ethnicity, (United State Department of Labor, 2008).

٠

The American Time Use Survey 2007 reported time spent on working and work related activities for the civilian population by ethnicity as: 26.9 hours/week for White; 24.7 hours/week for African American; and 29.2 hours/week for Hispanic or Latino (United State Department of Labor, 2008). Similarly, time spent on leisure and sports for different ethnic groups were: 35.4 hours/week for White; 40.2 hours/week for African American; and 32.6 hours/week for Hispanic or Latino. According to the American Time Use Survey 2007, there was no consistent pattern of difference between white and Students of Color for time use for various activities.

This study also attempted to find out if time spent on various activities differed by residence (rural vs. urban), where they were brought up, of respondents. Student t-tests were used to determine the difference between these two groups. Findings indicated significant differences between the rural and urban respondents for time use in class preparation; relaxing and socializing; and commuting to class (Table 13). Respondents from urban community significantly (t= 2.034, p < 0.05) spent more time (15.6 hrs/week) on preparing for class than did respondents from rural community (14.7 hrs/week). Similarly, respondents from urban background spent significantly (t= 4.022, p < 0.001)

more time (17.1 hrs/week) on relaxing and socializing than did respondent from rural residence (15.2 hrs/week). Whereas respondents from rural communities spent significantly (t=2.722, p <0.01) more time (5.2 hrs/week) in commuting to class than did students from urban communities (4.8 hrs/week).

No statistically significant differences were found between rural and urban respondents in time use for working for pay on-campus and off-campus; participating in co-curricular activities; and providing care for dependents.

Activities	n	Mean (SD)	t	p value
Preparing for class				
Rural	1242	14.7 (10.8)	2 024	0.042*
Urban	1501	15.6 (11.5)	2.034	0.042*
Working for pay on-campus				
Rural	578	13.7 (6.7)	0.674	0.501
Urban	591	13.4 (6.4)	0.074	0.501
Working for pay off-campus				
Rural	524	16.6 (9.4)	1 220	0.194
Urban	478	17.3 (9.3)	1.330	0.184
Participating in co-curricular activities				
Rural	916	6.0 (6.2)	0 6 4 5	0.510
Urban	1063	6.2 (6.8)	0.043	0.519
Relaxing and socializing				
Rural	1232	15.2 (12.3)	4 022	0.001***
Urban	1477	17.1 (13.2)	4.022	0.001***
Providing care for dependents				
Rural	198	11.1 (15.6)	0 779	0.469
Urban	202	12.2 (16.4)	0.728	0.408
Commuting to class				
Rural	1226	5.2 (4.1)	2 722	0.01**
Urban	1476	4.8 (3.9)	2.122	0.01+*

Table 13. Time use (hours/week) by residence types of respondents

* Significant at 0.05 Alpha level, ** Significant at 0.01 Alpha level,

*** Significant at 0.001 Alpha level.

A significant difference was observed between rural and urban respondents for spending time on relaxing and socializing. Urban respondents spent more time on relaxing and socializing, and participating in co-curricular activities than their rural colleagues. It seems logical that urban respondents grew up in urban environment where they might have availability and access to all kinds of services for sports, entertainment, and social clubs. Thus, students from urban areas might be more habituated with exercising, watching TV, partying, and participating in social organizations which made them likely to spend more time in relaxing and socializing, and extra-curricular activities than the students from rural background.

With regard to commuting time difference between rural and urban respondents, it was revealed from the first paper of this dissertation that rural students were much more influenced by their parents and guardians for their decision to select college major. Thus, it is possible that rural students are staying with their parents and commuting to class, which makes them spend significantly more time in commuting to class than their urban colleagues.

Overall, findings show that urban students were engaged in more activities and spent more time on academic and non-academic activities than did their rural colleagues.

For most students, college choice and academic major selection usually start during high school. Traditionally, many students enrolled in CANR programs come from 4-H and/or FFA backgrounds. It could be possible that students who participated in 4-H/FFA activities while attending school may spend time differently than those who did not have 4-H/FFA backgrounds. Thus, one of the objectives of this study was to determine differences in time use by participants or non-participants of 4-H/FFA during

high school. Independent sample t tests (Appendix J) showed that there was no significant difference between the participants and non-participants of 4-H/FFA on weekly time use patterns on various activities except the time spent in relaxing and socializing. Statistical analysis revealed that non-participants of 4-H/FFA spent significantly (t=4.821, p < 0.001) more time (16.9 hrs/week) in relaxing and socializing than did participants of 4-H/FFA (14.2 hrs/week). However, participants of 4-H/FFA spent more time, though not statistically significant, in co-curricular activities than did non-participants. It might be possible that for those who were involved in organizations such as 4-H and FFA in high schools, were likely to participate more in student organizations, student government, and campus publications during college rather than spending time on relaxing and socializing.

Similarly, weekly time use patterns were compared between respondents who indicated membership in the National Honor Society (NHS) during high school and those who did not. Findings revealed that no significant differences were found for time spent on various activities except working for pay on-campus. Respondents who were not members of the NHS in high school spent significantly (t = 2.323, p < 0.05) more time (14.1 hrs/week) in working for pay on-campus than did members (13.0 hrs/week) of NHS (Appendix K). It could be possible that members of NHS had better high school GPA and possible higher Scholastic Aptitude Test score, which help them receive fellowships in college and they did not have to spend more time in working for pay. Whereas the relationship could be just reverse in case of non-member respondents; thus, they had to spend more hours in work.

Conclusions and Recommendations

Five-year data of 2,803 undergraduate students in the CANR at MSU on weekly time use for various activities showed an average of 15.2 hours/week preparing for class, 13.5 hours/week working on-campus, 16.9 hours/week working off-campus, 6.1 hours/week participating in co-curricular activities, 16.2 hours/week relaxing and socializing, 11.6 hours/week providing care for dependents, and 5.0 hours/week commuting to class. As indicated by the high standard deviation, time use variation was the highest for providing care for dependents. It is interesting to note that respondents spent more time relaxing and socializing than they did spend in educational activities.

Respondents indicated that they enroll, in general, for 14 credits each semester which means they spend at least 14 hours per week in class. A commonly quoted rule is that college students are expected to spend two hours in class preparation for each hour spent in class (Gortner and Zulauf, 2000). If one accepts this general standard, students in this study should have spent at least 28 hours/week preparing for class. Findings of this study indicate, however, that CANR students spent fifteen hours a week in class preparation, almost half the recommended time for college students. The numbers of hours devoted to class preparation by CANR students is substantially low in comparison of hours spent by undergraduate students of agricultural economics at Ohio State University (Gortner and Zulauf, 2000). However, the average time spent on class preparation in this study is about the same as the median study time (14.5 hours/week) spent by students in the College of Literature, Science and Arts at the University of Michigan (Schuman et al.,1985).

Comparison of time use profile (hours/week) between the CANR respondents at MSU and ANR respondents of NSSE 2008 survey indicates that respondents in this study
spent more amount of time in academic activities than the respondents in the latter. Similarly, respondents in the CANR at MSU spent more time on employment at campus than did the ANR respondents of NSSE survey 2008. The ANR respondents of NSSE survey 2008 spent more time on both working for pay off-campus and participating in extra-curricular activities than did respondents in the CANR at MSU. Respondents in the CANR at MSU spent more time on relaxing and socializing, and commuting to class than did the ANR respondents of NSSE 2008 survey whereas the ANR respondents of NSSE (2008) survey spent more time for providing care for dependents than did the CANR respondents at MSU. Overall, respondents in both studies spent most of their time on relaxing and socializing followed by academic activities.

Students' time use patterns on various activities also varied by demographic characteristics such as academic level of education, sex, ethnicity, residency, participation in 4-H/FFA activities while in high school, and National Honor Society membership. Results of an ANOVA test revealed that there were significant differences between academic levels of respondents for working for pay on-campus and off-campus jobs, relaxing and socializing, and providing care for dependents. The possible reason for juniors and seniors spending more time (hours/week) at on-campus and off-campus work could be increased financial necessity. Gortner and Zulauf (2000) argue that the reason seniors spend more hours at work is fewer scholarship opportunities for upperclassmen. Disproportionately more fellowships are directed at freshmen and sophomores as recruitment incentives. Levels of parental support also decrease as students grow older. Freshmen spent more hours per week relaxing and socializing than did juniors. The

probable reasons for less time spent by juniors and seniors in relaxing and socializing may be their financial need to meet family expenses and tuition costs.

This study found that there were significant differences between students' sex and time use patterns. Female students spent significantly more hours per week preparing for classes and commuting to class than did male students. Male students, on the other hand, spent significantly more hours working on-campus and off-campus jobs, participating in co-curricular activities, and relaxing and socializing than did female students. The fact that female students spent less time in working on-campus and in relaxing and socializing may have helped them devote more time to class preparation than for the male students. Finding on time spent on relaxing and socializing is consistent with the finding of Gortner and Zulauf (2000) and NSSE (2008). However, the study of employed Americans by (Robinson and Godbey, 1997) indicated no difference in time spent watching television between males and females in the age group of 18 to 24 years. In conclusion, males were more involved in work, participation in extracurricular activities and socialization whereas females were more involved in academic activities.

Findings also reveal significant differences in time use by ethnicity of the respondents. Respondents of this study were predominantly (87.1 percent) white, and they spent significantly more time in relaxing and socializing than did Students of Color. Students of Color spent significantly more time working at on-campus jobs, and commuting to class than did white students. In conclusion, compared to whites, Students of Color were more engaged in academic activities and employment work.

Significant differences were observed between rural and urban respondents for time use in preparing for class, relaxing and socializing, and commuting to class.

Respondents from urban community spent significantly more time preparing for class and relaxing and socializing than did respondents from rural community background. However, respondents from rural communities spent significantly more time on commuting to class than did respondents from urban communities. In commuting behavior, it may be possible that students who grew up in rural areas have a tendency to live either with their parents or live farther from the university. This might be the reason for spending significantly more time commuting to class than students from urban communities. Overall, respondents from urban communities were more engaged in academic activities, off-campus work, and extra-curricular activities than the respondents from rural community background.

Analysis showed no significant differences between participants and nonparticipants of 4-H and FFA for time use except in relaxing and socializing. Nonparticipants of 4-H and FFA significantly spent more time in this activity than did participants. Although not significant, respondents who participated in 4-H and FFA during high schools, spent more time participating in co-curricular activities.

Similarly, analysis was carried out to identify whether member of the National Honor Society (NHS) differs from non-member in time use for various activities. Analysis revealed no significant differences between the groups (member and nonmember) for time use except working for pay on-campus. Non-member respondents spent significantly more time working on-campus than did member respondents. Overall, non-members of NHS were more involved in employment work, both on-campus and off-campus, socializations, taking care of their dependents, and commuting to class than member respondents. Time management is a real challenge for many college students; many of them find college life very stressful. Time management is a skill that can be taught to students making them more effective learners. Past studies on time management indicate that students who are poor in time management suffer from stress, resulting in poor academic performance. Conversely, students who manage their time better showed higher levels of performance. Students who manage their time better will experience greater satisfaction with their academic programs as well as work and other aspects of their lives.

The conclusions of this study help make the following recommendations:

Respondents tend to spend more time in relaxing and socializing than in academic matters. It seems that the CANR students need counseling about how much time they should devote to preparing for class including reading, doing homework or lab work, researching, analyzing data, and writing reports and/or papers. The college and academic departments could counsel students on how best to manage their time during their studies. Seminars, workshops and counseling sessions could be organized during orientations, annual events such as CANR Student Senate meetings and through meetings with academic advisors.

Results of this study indicate a great variation in time use patterns by demographic characteristics. Results showed that academic level, sex, ethnicity, and residence are associated with time use. It was found that senior male students were more involved in various activities. Therefore, it can be recommended that senior level students can be used as mentors for their junior colleagues on how to best manage time in various activities.

Academic advising or counseling should focus more on Freshmen, male, white students with urban background because they significantly spent more time on relaxing and socializing. The focus of this study is to document time use profile of the CANR students at MSU and to analyze time use patterns against the selected demographic characteristics of respondents. In this study, seniors and males were significantly different from others in time use. Thus, based on the differences in time use for selected demographic characteristics of respondents, it would be imperative to conduct detailed time-management research studies in the following topics in the future:

- i) Gender differences in time management and its impact on students' college performance in terms of grade point average (GPA),
- ii) Relationship between time use profile and degree completion time, and
- iii) Comparison between self-reported online survey and weekly time dairy method of time use measurement.

REFERENCES

- Britton, B. K. & Tesser, A. (1991). Effects of Time-Management Practices on College Grades. Journal of Education Psychology 83(3): 405-410.
- Couper, M. P. (2000). Web surveys: A review of issues and approaches. *Public Opinion Quarterly 64*(4): 464-494.
- Dilman, D. A. (2000). *Mail and Internet Surveys: The Tailored Design Method*. New York: Wiley.
- Duffy, M. E. (2000). Methodological issues in web-based research. Journal of Nursing Scholarship 34(1): 83-88.
- Gortner, A. K. & Zulauf, C. R. (2000). The Use of Time by Undergraduate Students. Journal of North American Colleges and Teachers of Agriculture 44(1): 22-28.
- Higher Education Research Institute (2009). The American Freshman: National Norms for Fall 2008. Higher Education Research Institute, University of California, Los Angeles.
- Jacobs, J. A. (1998). Measuring time at work: Are self-reports accurate? *Monthly Labor Review. Washington 121*(12): 42-53.
- Kaplowitz, M. D., Hadlock, T. D. & Levine, R. (2004). A Comparison of Web and Mail Survey Response Rates. *Public Opinion Quarterly* 68(1): 94-101.
- Macan, T. H. (1994). Time Management: Test of a Process Model. Journal of Applied Psychology 79(3): 381-391.
- Macan, T. H., Shahani, C., Dipboye, R. L. & Phillips, A. P. (1990). College Students' Time Management: Correlations with Academic Performance and Stress. *Journal* of Educational Psychology 82(4): 760-768.
- Meredeen, S. (1988). Study for Survival and Success. London: Paul Chapman Cited by M. Trueman, and J. Hartley. (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. Higher Education 32(2): 199-215.

- NSSE. (2004). National Survey of Student Engagement (NSSE) Instrument, The College Student Report. Indiana University, Bloomington. Retrieved January 15, 2004, from http://nsse.iub.edu/pdf/NSSE2008_US_English_Paper.pdf.
- NSSE (2008). Special Analysis of Agricultural and Natural Resources Respondents of NSSE 2008 Survey. Indiana University Bloomington.
- Robinson, J. P. & Godbey, G. (1997). Time for Life. The Surprising Ways Americans Use Their Time. University Park, PA: The Pennsylvania State University Press.
- Sax, L. J., Gilmartin, S. K. & Bryant, A. N. (2003). Assessing Response Rates and Nonresponse Bias in Web and Paper Surveys. *Research in Higher Education* 44(4): 409-432.
- Schuman, H., Walsh, E., Olson, C. & Etheridge, B. (1985). Effort and Reward: The Assumption that College Grades Are Affected by Quantity of Study. Social Forces 63(4): 945-966.
- Trueman, M. & Hartley, J. (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. *Higher Education 32*(2): 199-215.
- United State Department of Labor. (2007). College students and time use, 2003-2006. United States Department of Labor, Bureau of Labor Statistics, Washington D.C. United States Department of Labor, Bureau of Labor Statistics, Washington D.C. Available at http://stats.bls.gov/tus/charts/ch6.pdf. Retrieved September 1, 2008, from http://stats.bls.gov/tus/charts/ch6.pdf.
- United State Department of Labor (2008). American Time Use Survey 2007 Results. United States Department of Labor, Bureau of Labor Statistics, Washington D.C. Available at http://www.bls.gov/news.release/pdf/atus.pdf.

CHAPTER IV

STUDENTS' PERCEPTIONS ABOUT ACADEMIC PROGRAMS IN THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY

Introduction

As primary stakeholders in educational institutions, students are reliable sources of information in the assessment of higher education. College students are conscientious consumers who generally report their activities accurately and express their opinions and experiences forthrightly; thus, their judgments are consistent, reliable, and valid (Higgins, Hartley, & Skelton, 2002; Spencer, 1994; Pace, 1985). Administrators and academic department heads consider students' perceptions of, and satisfaction with, their educational experiences as possible indicators of departmental excellence (Braskamp et al., 1979). Twombly (1992) advocates that students are in the best position to describe the curriculum, as they have experienced the curriculum in classrooms. Hearn (1985) argues that understanding student satisfaction is fundamental to a better understanding of educational process and quality.

Student assessment as a means of evaluating different aspects of academic programs in higher education has been extensively used in many countries. Student ratings have been found the most influential measure of teaching effectiveness, academic advising, and overall program improvement (Chen and Hoshower, 2003; Corts et al., 2000; Spencer, 1994; Astin, 1991; Hearn, 1985; Stumpf, 1979). Despite questions of reliability and validity of students' ratings of instruction (James, 2001; Armstrong, 1998; Greenwald, 1997; Arubayi, 1987; Frey, 1976; Rodin and Rodin, 1972), student

evaluations of teaching have been found effective to improve both instruction and courses (Corts et al., 2000; Donald and Denison, 1996; Worley and Casavant, 1995).

Studies show relationships between students' satisfaction with academic advising and their persistence (retention) within an academic program. Effective academic advising has been found positively correlated to students' satisfaction with their college experience (Priest & McPhee, 2000 cited in Grewe 2007). Students' academic satisfaction is a critical mediating factor for their college persistence (Endo and Harpel, 1982; Bean, 1982).

A student's social interaction with other students and faculty members and resulting level of satisfaction is related to his or her decision to stay in or depart from the program. Students who connect with at least one adult on campus experience higher levels of satisfaction and higher retention rates than students who do not (Astin, 1993; Tinto, 1987). The more contact between students and faculty, both inside and outside the classroom, the greater the student development and satisfaction (Astin, 1993). According to Tinto (1987), the number and quality of contacts between faculty and students have a major influence on students' commitment to remain in college.

Studies indicate that many university and departmental assessments focus on outcomes from an institutional perspective rather than student perspectives (Corts et al., 2000; Sanders and Burton, 1996). Corts et at. note that departmental level assessment is often limited to class-by-class analysis of instructor and course quality, and less frequently these assessments include issues such as academic advising and mentoring, which make a significant contribution to students' academic and personal development. A recent national study of advising needs indicated that 75 percent of responding higher

education institutions view academic advising as important to retention (Noel-Levitz Inc., 2006).

Several studies show that the majority of students are not satisfied with academic advising and career counseling (Kotler and Fox, 1995), or that academic advising is a frequent source of dissatisfaction among students (McAnulty et al., 1987; Guinn and Mitchell, 1986). The national survey of college students findings (2005) indicated academic advising was one of the least satisfactory activities of academic life (Saenz and Barrera, 2007). In the same study, students were least satisfied with career counseling, advising, and job placement services.

Internationalization of curricula in higher education

Internationalization of curricula is an integral component in the process of internationalization of higher education. In response to the fast changing globalization of a knowledge-based economy, which has stimulated intense international competition for college-educated and trained workers, the higher education institutions in many developed nations have strived to internationalize their educational programs.

A study of internationalization in U.S. Higher Education concludes that

less than seven percent of all higher education students meet even basic standards of global preparedness; international courses constitute only a small part of college and university curricula; study abroad remains an undervalued and underutilized means of instruction; internationalization as an institutional concept worthy of campus-wide integration is rare; and most graduates are ill-prepared to face the global marketplace of employment and ideas (Hayward, 2000, page 4).

Another report entitled A Call to Leadership: The Presidential Role in Internationalizing the University, documented America's failing grade by stating that "The United States falls short on virtually all indicators of international knowledge, awareness, and competence" (Task Force Report on International Education,

NASULGC, 2004, page 3). The same report further states, "the sad truth is that American campuses have failed to internationalize at the very time it is essential to serving our students, our communities and the world" (Executive Summary, page viii). Mason et al. (1994) found in their study of agriculture students' interest and knowledge of international agriculture that more than fifty percent of students lack knowledge about the international dimensions of agriculture. This indicates a real need to increase the international knowledge base of students. Acker and Scanes (1998) argue that all learning for agriculture students should include global dimensions as a key element in a quality education to prepare for global careers and to enhance appreciation for diversity. Acker (1999) states that agribusinesses operate in a global market and require a workforce prepared accordingly. Thus, global skills, global perspectives, and global citizenship are now a fundamental prerequisite for success in agribusiness careers.

Michigan State University (MSU) has been striving for internationalization of its colleges and programs to become world-grant university. Enhancing the student experience and expanding international reach are two of the five strategic imperatives of Boldness by Design strategic positioning of MSU to be recognized worldwide as the leading land-grant research university in the United States by 2012 (Michigan State University, 2009). MSU has been showing its international presence and internationalizing its programs through international studies and programs, study abroad, international development, thematic international institutes, language studies, and area studies centers to name a few. According to Open Doors (2008) MSU has become the leading institution in the U.S. for study abroad participation among public universities in

the United States for the fourth year in a row. The CANR at MSU hosts the largest undergraduate study abroad program among the colleges of agriculture in the U.S. (CANR Homepage, 2009). Additionally, faculty members in the CANR are involved in international research and outreach programs through Institute of International Agriculture (IIA). Since faculty members are the drivers of internationalization of the program in higher education, they are expected to develop course curricula with international content and share international issues or case studies with students in classrooms.

It is important that the colleges of agriculture and academic departments conduct periodic studies to get feedback from students about their academic experiences. Students' feedback on academic programs will help college administrators, department heads, and faculty members design new courses, improve existing course curricula, and implement academic programs in effective ways. In this context, there is a lack of information on students' academic experiences about course offerings, faculty support, academic advising and career services, and internationalization of curricula in the CANR at MSU. Thus, this study was conducted to fill these information gaps in the CANR at MSU.

This comprehensive assessment of students' perspectives ranging from student level Freshmen to Senior during the last four years of study provides a broad picture of overall satisfaction with course offerings, faculty interaction, academic advising, and strengths and weaknesses of academic majors. The findings of this study may be utilized by college administrators, department heads and faculty members to bring improvements in the undergraduate programs, especially in course offerings and scheduling, academic

advising, and internationalization of curricula. This will help college graduates be better equipped to serve in the ever changing context of agriculture and food industries in both the domestic and the international marketplaces. The subsequent improvement in academic programs may enhance the satisfaction of the current undergraduate students in the CANR, which may ultimately help not only in retention of current students but also in recruitment of new students in the future through word-of-mouth promotion.

Objectives

The overall purpose of this study is to assess students' perceptions about academic programs in the CANR. The specific objectives are to:

- 1. ascertain students' perceptions about course offerings and faculty support.
- 2. assess students' perceptions about academic advising.
- 3. explore students' perceptions about internationalization of curricula.
- analyze students' feedback about strengths and weaknesses of the undergraduate program within CANR and solicit suggestions to enhance the undergraduate education.

Methodology

The undergraduate students in the CANR at MSU were the population of interest for this study. An online survey was initiated in 2004 to assess students' perceptions of academic programs within CANR. Survey questions pertaining to course offerings and faculty support, academic advising, and internationalization of curricula were added to the online survey beginning in spring 2005. The survey was conducted each year toward

the end of spring semester. This study utilized survey data from spring 2005 to spring 2008.

The survey instrument for this study was developed by Dr. Murari Suvedi, Professor in the Department of Community, Agriculture, Recreation and Resource Studies (CARRS), and Dr. Eunice F. Foster, Associate Dean, Office of the Dean, CANR at MSU. It was reviewed by the academic advisors within CANR. The survey instrument consisted of questions about the perceptions of students regarding assessment of major courses, faculty support, academic advising, and internationalization of curriculum in CANR. Students' perceptions regarding assessment of college majors and faculty support were assessed by five statements measured in a Likert type scale rating, 1 = "strongly disagree", 2 = "disagree", 3 = "neither agree nor disagree", 4 = "agree" and 5 = "strongly agree". Similarly, students' perceptions on academic advising were assessed by ten statements measured in the same Likert type scale rating as academic majors and faculty support. The statements for measuring academic advising covered the different aspects of academic advising such as approachable advisor, knowledgeable and helpful advisor, encourage students in academic and professional growth, and providing timely information for the successful education of students. The academic advising scales included most items of the student evaluation of advising survey developed by the North American Colleges and Teachers of Agriculture (NACTA) conference 2002 (Zimmerman and Mokma, 2004). Students' perceptions on internationalization of curriculum in the CANR were measured by four questions. These questions included students taking courses that focus on international issues, participation in the study abroad program, frequency of sharing international issues or case studies by faculty members in their

classes, and students' involvement in international research or outreach programs. All the questions were asked in a nominal scale (yes or no) except for faculty sharing international issues in classrooms, which was asked in five point scales with 1 = "not at all", 2 = "rarely", 3 = "occasionally", 4 = "frequently" and 5 = "regularly". Finally, the last section of the instrument contained three open ended questions. Respondents were asked to write about: i) the strengths of their academic major, ii) the weaknesses of the program, and iii) suggestions for improving programs.

The online survey was sent to all the undergraduate students who registered for spring semester during the last week of March and remained active by the end of April. Three follow-up reminders were sent by e-mail along with a link to the survey two weeks after the fist survey was sent. As an incentive, survey participants were provided with a two-scoop ice-cream coupon. The survey yielded an aggregate response rate of 24.5%.

Various statistical procedures—quantitative and qualitative—were employed to analyze and summarize the data. Descriptive statistics: frequency, mean, and standard deviation were used to analyze perceptions about course offerings, faculty support, academic advising, and internalization of curriculum. An independent t-test and analysis of variance, and an one way ANOVA (F test) were used to determine differences between groups. Cross-tabulations were done and the Chi-square value was used to identify whether the groups differed in their perceptions.

The open-ended responses for each question: strength, weakness, and recommendation were analyzed by using a qualitative approach. Statements for each open-ended question were carefully read and broad thematic areas were identified. Each statement was then coded by assigning the unique number for each thematic area and put

into the respective thematic group. Finally, a frequency count was done for each thematic area and presented in a tabular form. To reflect students' feelings and impressions, selected quotations are presented verbatim. Analysis was conducted at three stages. At first, data were analyzed using the aforementioned procedures by i) academic majors, ii) department, and iii) college level. The final aggregate results for the overall college are presented in the main text, and the departmental summary is placed in appendices.

As part of the data analysis, a Cronbach's alpha coefficient was calculated for the reliability of the survey instrument pertaining to items for course offerings and faculty help, and academic advising. The reliability score for course offerings and faculty help was 0.70, and for academic advising it was 0.92. These coefficients indicate that the scales consistently and uniformly measure perceptions.

Results and Discussions

The findings of students' assessment of course offerings and faculty support, academic advising, and internationalization of curricula are presented and described in this section.

Description of respondents

A total of 2,037 CANR undergraduate students, freshman (15.2%), sophomore (25.5%), junior (44.6%), and senior (14.7%), participated in the online study between 2005 and 2008. Among them, males and females accounted 33.9% and 66.1%, respectively. For the purpose of this study, respondents were categorized into two age groups: i) traditional undergraduate (18 to 24 years old), and ii) non-traditional

undergraduate (25 years and older). The representation of traditional and non-traditional respondents was 93.6% and 6.4% respectively. A vast majority of the respondents were white (86.9%), but students of color represented 13.1%. More than half (56.3%) of the respondents were from suburban or urban areas and 43.7% of the respondents were from rural areas. By residential status, nine out of ten respondents were in-state (state of Michigan), and only 8.3 % respondents were out-of-state and international students. Respondents were also characterized by their membership in the national honor society and participation in 4H/FFA organizations during high school. More than half (55.3%) of respondents were members of the national honor society and 22.1% respondents participated in 4H and FFA activities while they were in high school. A detailed distribution of respondents by survey year from 2005 to 2008 is given in Appendix L.

Respondents' perceptions of course offering and faculty help

The descriptive statistics on perceptions about course offerings and faculty support are presented in Table 14. The results indicate that three out of five respondents either agreed or strongly agreed that most required courses were offered every year. But a little more than half (54.7%) of the respondents either agreed or strongly agreed that courses were scheduled at convenient times.

% % % % % Most required courses are offered every year 2035 2.8 8.6 Courses are scheduled at convenient times 2029 4.6 18.7 Courses are taught by experienced 2025 4.0 4.6	isagree Disagree	e agree nor disagree	Agree	Strongly Agree	Mean* (SD)
Most required courses are offered every year20352.88.6Courses are scheduled at convenient times20294.618.7Courses are taught by experienced20251.31.4	% %	%	%	%	
Courses are scheduled at convenient times20294.618.7Courses are taught by experienced20251.51.4	2.8 8.6	13.8	59.1	15.8	3.8 (0.9)
Courses are taught by experienced	4.6 18.7	21.9	47.4	7.3	3.3 (1.0)
departmental faculty 4.4	1.2 4.4	15.2	51.0	28.1	4.0 (0.9)
Departmental faculty are accessible outside of 2029 0.4 2.9 class	0.4 2.9	13.9	57.9	24.8	4.0 (0.7)
Departmental faculty are approachable 2033 0.5 2.4	0.5 2.4	10.6	53.7	32.8	4.2 (0.7)
Overall perceptions 2030 1.9 7.4	1.9 7.4	15.1	53.8	21.8	3.9 (0.8)

Table 14. Respondents' perceptions of course offering and faculty help

* Mean is computed based on 1=Strongly Disagree, 2=Disagree, 3=Neither Disagree Nor Agree, 4=Agree, and 5=Strongly Agree.

About four out of five (79.1%) respondents either agreed or strongly agreed that courses were taught by experienced faculty members. Likewise, four out of five respondents either agreed or strongly agreed that departmental faculty members were accessible outside of class. Nearly nine (86.5%) out of ten respondents either agreed or strongly agreed that departmental faculty were approachable. The overall mean score of 3.9 on a 1 to 5 scale with 1= strongly disagree and 5= strongly agree indicates that respondents agreed on most of the statements except scheduling of courses at convenient times. In sum, the majority of respondents felt positive about course offerings and accessibility and approachability of faculty members.

The t test results (Appendix M) revealed that there were no statistically significant differences between male and female, traditional (18 to 24 years old) and non-traditional (25 years and older), white and Students of Color, in-state and out-of-state, and participants and nonparticipants of 4H/FFA with respect to course offerings and faculty support. The ANOVA results (Appendix N) also indicated that there were no differences by academic status and residency of students on their perception about course offerings and faculty support. In other words, irrespective of their gender, age, ethnicity, residency status, academic status, and residence, students had a very positive perception about course offerings and faculty support. These findings are in agreement with study findings of Braskamp et al., (1979). However, the results of this study are different from those of Hearn (1985), who found significant gender differences in satisfaction with availability and interactions with professors. The findings of this study revealed that students' ratings of course offerings and faculty support at MSU-CANR are far better than the national average. For example, a recent national study of college student revealed that less than

half (48.2%) of students were successful in getting to know faculty (Saenz and Barrera, 2007).

Respondents who indicated their membership in the National Honor Society during high school were found to have different perceptions than the non-members about course offerings and faculty support (Appendix M). Respondents who were members of the National Honor Society had significantly a higher (t = 1.980, p = 0.05) mean with respect to perceptions of course offerings and faculty support than non-members. Students who are members of national honor societies are considered academically talented, and they carry internal pressure to continuously perform at a higher level because they have been designated as high achievers (Freeman, 1999). Thus, students who were members of the national honor society may contact faculty members more than their non-member colleagues, which might have helped them perceive faculty support more positively.

Perceptions about academic advising

Respondents were asked to indicate their perceptions about different aspects of academic advising. As shown in Table 15, four out of five respondents indicated (either agreed or strongly agreed) that the major advisor was easily accessible (82.2%) and provided accurate information about degree requirements (83.5%). Nearly three-quarters of respondents either agreed or strongly agreed that the major advisor helped solve academic problems (73.7%), and referred to helpful resources as per students' need (74.5%). A little more than two-thirds of respondents either agreed or strongly agreed that the major advisor provided timely information on internship opportunities (67.7%) and encouraged them to participate in internships (68.6%). More than half (55.2%) of

respondents either agreed or strongly agreed that the major advisor encouraged them to participate in study abroad. It is important to note that a little more than one-third (34.8%) of respondents were neutral (neither disagree nor agree) on this statement. Less than half (47.2%) of respondents either agreed or strongly agreed that the major advisor encouraged them to participate in volunteer programs. Two out of five respondents were neutral (neither disagree nor agree) to the statement that the major advisor encouraged them to participate in volunteer programs. Seven out of ten respondents either agreed or strongly agreed that the major advisor shared information on career opportunities. Lowest agreements were found for statements pertaining to encouraging students to volunteer and participate in study abroad. Overall, eight out of ten respondents agreed with statements pertaining to academic advising services. The overall mean of 4.1 indicates that respondents were satisfied with the academic advising services in the CANR.

		Stronolv		Neither		Stronoly	
Statements	Z	Disagree	Disagree	disagree nor agree	Agree	Agree	Mean* (SD)
		%	%	%	%	%	
My major advisor is easily accessible.	2031	1.4	4.6	11.8	42.2	40.0	4.1 (0.9)
My major advisor gives me accurate information about degree requirements.	2027	1.4	3.2	11.9	42.7	40.8	4.2 (0.9)
My major advisor helps me with academic problems.	2027	1.7	4.8	19.8	40.0	33.7	4.0 (0.9)
My major advisor refers me to helpful resources when I needed them.	2025	1.5	4.1	19.9	41.1	33.4	4.0 (0.9)
My major advisor provides timely information on internship opportunities.	2027	1.8	4.1	26.4	37.1	30.6	3.9 (0.9)
My major advisor encourages me to participate in internships.	2027	1.5	4.7	25.3	35.7	32.9	3.9 (0.9)
My major advisor encourages me to participate in study abroad.	2021	2.1	7.9	34.8	32.3	22.9	3.7 (1.0)
My major advisor encourages me to participate in volunteer programs.	2025	2.4	11.5	38.9	30.0	17.2	3.5 (1.0)
My major advisor shares information on career opportunities.	2024	2.0	5.9	21.4	41.6	29.1	3.9 (1.0)
Overall, I am satisfied with the academic advising services I have received.	2026	2.5	4.9	12.3	40.9	39.3	4.1 (1.0)

Table 15. Respondents' perceptions of academic advising

* Mean is computed based on 1=Strongly Disagree, 2=Disagree, 3=Neither Disagree Nor Agree, 4=Agree, and 5=Strongly Agree.

Past studies have indicated that students' perception of academic advising varies with their demographic characteristics such as sex, race, age, year in college, grade point average, number of semesters with advisor, and motivation, etc. (Smith, 2002; Hanner, 2000; Broadbridge, 1996; Herndon et al., 1996; Milburn, 1994; Fielstein et al., 1992; Seppanen, 1981). In this study, additional analysis was conducted to find out whether MSU-CANR students differ in their perceptions by their demographic characteristics. Independent t-test results (Appendix O) revealed that respondents' perception about academic advising did not differ by gender, ethnicity, residency status, and membership in the national honor society. Similarly, one way ANOVA (Appendix P) showed no differences in the perceptions of academic advising services among respondents from different academic year and residence (rural, suburban and urban).

However, the results of the independent t-test results showed that respondents' perceptions about academic advising significantly differed by age and participation in 4H and FFA activities. The non-traditional respondents aged 25 years and older perceived academic advising services significantly better (t = 2.094, p < 0.05) than did the younger students, 18 to 24 years old. It is possible that since non-traditional students are more mature and goal-oriented than traditional undergraduate students in general, they may make more contacts with their academic advisors and seek advice more frequently than younger students. A study on academic advising at Michigan State University showed that seniors reported more contacts than students in the other classes. In fact, 40% of respondents who had not seen an advisor at all were freshmen (Hembroff and Clark, 2001).

Respondents who participated in 4H/FFA activities perceived academic advising services significantly better (t = 3.484, p < 0.001) than those who did not participate in 4H and FFA activities while they were in high school. It could be possible that students who were involved in 4H and FFA activities during high school study may have developed personal relations and communication skills that made them feel comfortable meeting with their academic advisors. Literature supports the notion that the higher the frequency of contacts with faculty members and advisors, the higher the satisfaction with academic experience or advising.

Findings from this study are different from the findings of Russel and Russel (2008), who found a significant difference for student's gender with the academic advising process. Similarly, Afshar and Dhiman (2008) found that male students rated academic advising higher than their female colleagues. A national study of student engagement also showed that female students rated the overall quality of academic advising higher than did male students (National Survey of Student Engagement, 2007).

In regard to the relationship between class level and perceived satisfaction with academic advising, the findings of this study are consistent with those of Russel and Russel (2008). They did not find any difference among the students in different class levels for their perceived satisfaction with academic advising. Afshar and Dhiman (2008), on the other hand, found in their study that freshmen rated academic advising higher than did sophomores, juniors and seniors. A study by Hester (2008) found that as a student's class level increased from freshman to senior, the rating of the advisor's knowledge decreased. A national study of student engagement showed that more first year students (76%) reported their advising experience as good or excellent than the

senior students (69%). Further, senior students rated their advisors significantly lower than first year students did in the quality of career support and information about educational support services.

With regard to ethnicity, no differences were observed between white and Students of Color respondents for perceived satisfaction with academic advising. Previous studies in academic advising and its relationship with ethnicity or race have shown differential perceptions by students' race. Strayhorn (2008) found that African American high achievers were more satisfied with academic advising experiences than their White counterparts. Afshar and Dhiman (2008) reported that Asian and White American students rated academic advising higher than did Hispanic and African American students. An academic advising survey at MSU found that African American students reported more contacts with their advisor, whereas Asian/Pacific Islander students reported fewer contacts (Hembroff and Clark, 2001).

Internationalization of the CANR curricula

Internationalization of curricula was assessed by the extent to which students were taking courses focusing on international issues, involving themselves in international research and outreach programs, participating in study abroad programs, and faculty members incorporating international content in classroom teaching and discussions. Results indicated that nearly four out of ten (38.6%) respondents took courses focusing in international issues in CANR during the four-year period of this study (Table 16). Among respondents who did not take international courses, four out of ten (41.2%) would like to take one.

A success of internet and institute	2(005	20	90	2(007	2	008	Ĩ	otal
Aspects of internationalization	Freq.	(%)								
Course taken at MSU focusing on international										
issues.										
Yes	69	(30.5)	180	(36.0)	215	(41.0)	321	(40.9)	785	(38.6)
No	157	(69.5)	320	(64.0)	310	(20.0)	463	(59.1)	1250	(61.4)
Plan to take course with focus on intl. issues										
Yes	49	(31.8)	136	(42.8)	122	(39.5)	188	(40.7)	541	(41.2)
No	105	(68.2)	182	(57.2)	187	(60.5)	274	(59.3)	171	(58.8)
Frequency of international issues and/or case										
studies shared by CANR faculty										
Not at all	10	(4.5)	23	(4.6)	28	(5.4)	52	(9.9)	113	(2.6)
Rarely	37	(16.7)	96	(19.3)	110	(21.1)	181	(23.1)	424	(20.9)
Occasionally	109	(49.3)	242	(48.7)	251	(48.1)	363	(46.3)	965	(47.7)
Frequently	52	(23.5)	109	(21.9)	101	(19.3)	149	(19.0)	411	(20.3)
Regularly	13	(5.9)	27	(5.4)	32	((6.1)	39	(2.0)	111	(5.5)
Involved in international research/outreach										
projects										
Yes	12	(5.4)	34	(1.0)	25	(4.8)	41	(5.2)	112	(2.6)
No	209	(94.6)	452	(03.0)	494	(95.2)	742	(94.8)	1897	(94.4)
Participation in a study abroad program										
Yes	23	(10.2)	40	(8.0)	11	(13.5)	101	(12.9)	235	(11.6)
No	202	(89.8)	458	(92.0)	454	(86.5)	683	(87.1)	1797	(88.4)
Plan to participate in a study abroad program										
Yes	100	(49.8)	233	(51.7)	192	(42.4)	294	(43.2)	819	(45.9)
No	101	(50.2)	218	(48.3)	261	(57.6)	386	(56.8)	996	(54.1)

curricula
ANR
of the C
ation c
onaliz
Internati
16.
Table

Overall, less than half of the respondents indicated that they were either taking courses focusing on international issues or planned to take such a course during their study at MSU.

A Chi-square test was conducted to examine whether students' demographic characteristics (academic status, gender, age, ethnicity, residence, residency status, participation in 4-H/FFA, and membership in national honor society) are associated with taking courses that focus on international issues. The results showed that there was significant association ($\chi^2 = 57.592$, p < 0.001) between respondents' academic status and courses taken with a focus in an international issue (Appendix Q). More juniors took international courses than others. Similarly, a significant association ($\chi^2 = 6.885$, p < 0.01) was observed between respondents' gender and courses taken in international dimensions. A significantly higher proportion of female students took international courses focusing on international issues ($\chi^2 = 3.711$, p < 0.05). No associations were observed for other demographic variables (age, ethnicity, residence, residency status, and membership in the national honor society) and courses dealing with international issues taken by respondents.

With regard to faculty members sharing international issues or case studies in classroom teaching, a little more than a quarter (26.5%) of respondents indicated that either faculty did not share at all or did so rarely. Little less than half (47.7%) of respondents indicated that faculty shared international cases occasionally. One in five respondents indicated that faculty did share international issues and case studies in class frequently. Six percent of the respondents indicated that CANR faculty members shared

international issues and case studies regularly. Overall, a quarter of respondents reported that CANR faculty members either regularly or frequently shared international issues in classroom. Although, there is no universal standard for measuring the extent of internationalization of higher education, the results of this study about students taking international courses, involvement in international research and outreach project, and faculty sharing international issues and/or case studies in the classroom show that the CANR has not extensively internationalized its campus. Since faculty members are the drivers and main actors in internationalization of higher education, it is important to make sure that they have enthusiasm (motivation), opportunities, and receive recognition in this endeavor.

A cross-tabulation (Appendix R) between frequency of faculty members sharing international issues and/or case studies and respondents' academic status revealed that there was significant association ($\chi^2 = 31.567$, p < 0.01) between these two variables. Faculty are the most critical driving factor in achieving a goal of internationalization of campus. Faculty are responsible for creation and delivery of curriculum, and conducting research or outreach programs. They also make choices about the extent to which international dimensions are included in their classroom teaching and discussions, research, and outreach programs (Allen, 2004).

In regard to students' involvement in international research or outreach programs, about six percent of respondents indicated that they were involved. A large majority, nine out of ten respondents, were not involved in international research. Involving undergraduate students in research activities is important because it stimulates thinking and helps them develop critical thinking skills (Miller and Ware, 1999). The National

Survey of Student Engagement (2007) results showed that students who were involved in research with faculty members used deep approaches to learning: higher order thinking, integrative learning, and reflective learning.

A Chi-square test was also used to determine the association between students' selected demographic characteristics (academic status, gender, age, ethnicity, residence, residency status, participation in 4-H/FFA, and membership in the national honor society) and involvement in an international research or outreach project (Appendix S). A significant association ($\chi^2 = 5.419$, p < 0.05) was observed between respondents' age and involvement in international research or outreach projects. Traditional age (18-24 years old) students were more involved in international research or outreach projects than non-traditional (25 years or older) students. Similarly, a significant association ($\chi^2 = 10.966$, p < 0.001) was observed between respondents' ethnicity and involvement in international research or outreach projects. More white students indicated involvement in international research or outreach projects than did Students of Color. No significant association was observed for other demographic variables (academic status, gender, residence, residency status, participation in 4-H/FFA, and member in the national honor society) and involvement in an international research or outreach project.

The Boyer Commission (1998) advocated engaging undergraduate students in research activities as an innovative strategy for improving American higher education. On top of knowledge acquisition, researchers believe that a high quality undergraduate education should expose students to new ideas and ways of thinking and engage them in exploring and discovering new knowledge (Association of American Colleges and Universities, 2007; Miller and Ware, 1999; Boyer Commission, 1998). Studies show that

participation of undergraduate students in research activities has a positive relationship with persistence, pursuing and success in graduate education, and further career choice (Hathaway et al., 2002; Nnadozie et al., 2001; Nagda et al., 1998). The latest study results indicate that undergraduate students' experiences in research have increased since the late 1990s in research universities and other universities (Hu et al., 2007; Katkin, 2003). Findings of a national survey indicated that about 21 percent of undergraduate students worked on professors' research projects during their first year of studies (Hurtado et al., 2007). A national study of college students indicated that nearly a quarter of senior students had the opportunity to work on a research project (Saenz and Barrera, 2007).

Demographic profile of study abroad participants in the CANR

Respondents were asked whether they participated in study abroad and if they planned to participate if they had not done so. One out of ten (11.6%) respondents indicated that they had participated in study abroad, and four out of ten (45.9%) respondents planned to participate. Table 17 presents the profile of respondents who participated and planned to participate in the study abroad program. The cross-tabulation between demographic characteristics and participation in study abroad indicates that a little more than half (51.9%) of study abroad participants were junior level students. Sophomores and seniors participated almost in equal proportion (21%). Of those who participated, more than two-thirds were female, and nine out of ten were traditional aged (18 to 24 years old) students. In terms of ethnicity, four out of five study abroad participated in study abroad participates who participated in study abroad were from urban residence. Nine out of ten participants were in-state students.

Four out of time respondents who went abroad were non-members of 4-H/FFA. Nearly six out of ten study abroad participants were members of the national honor society.

Demographic Characteristics	Participa Study Al	ted in broad	Plan to Par in Study /	ticipate Abroad
	Frequency	(%)	Frequency	(%)
Academic Status	n = 23	35	n = 8	19
Freshman	14	(6.0)	214	(26.1)
Sophomore	49	(20.9)	278	(33.9)
Junior	122	(51.9)	282	(34.4)
Senior	50	(21.3)	45	(5.5)
Gender	n = 23	35	n = 8	12
Male	69	(29.4)	213	(26.2)
Female	166	(70.6)	599	(73.8)
Age	n = 23	35	n = 8	17
Traditional undergraduates (18 yrs. to 24 yrs. old)	220	(93.6)	786	(96.2)
Non-Traditional undergraduates (25 yrs. and older)	15	(6.4)	31	(3.8)
Ethnicity	n = 233		n = 814	
White	191	(82.0)	706	(86.7)
Students of Color	42	(18.0)	108	(13.3)
Residence	n = 23	35	n = 8	14
Rural	87	(37.0)	337	(41.4)
Urban	148	(63.0)	477	(58.6)
Residency status	n = 23	34	n = 8	14
In-State	214	(91.5)	740	(90.9)
Out-of-State and International	20	(8.5)	74	(9.1)
Participation in 4-H/FFA club during high school	n = 22	35	n = 8	18
Participant	46	(19.6)	175	(21.4)
Non-participant	189	(80.4)	643	(78.6)
Member in national honor society during high school	n = 23	34	n = 815	
Member	139	(59.4)	468	(57.4)
Non-member	95	(40.6)	347	(42.6)

Table 17. Profile of study abroad participants in the CANR

In summary, the study abroad participants were: white, female, mostly junior level students with urban residential backgrounds who did not participate in 4-H/FFA activities in high school and were members of the national honor society, and from the state of Michigan.

A Chi-square test was conducted to determine whether there was an association between students' demographic characteristics (academic status, gender, age, ethnicity, residence, residency status, participation in 4-H/FFA, and membership in the national honor society) and participation in study abroad. The results showed that there was significant association ($\chi^2 = 27.775$, p < 0.001) between respondents' academic status and participation in study abroad (Appendix T). More sophomores participated in study abroad than did respondents from other levels. Similarly, a significant association ($\chi^2 =$ 5.581, p < 0.05) was observed between respondents' ethnicity and participation in study abroad. Significantly more white students participated in study abroad than did Students of Color. There was a significant association ($\chi^2 = 4.825$, p < 0.05) between residence and participation in study abroad. Significantly more urban students participated in study abroad than did rural students. No associations were observed for other demographic variables (gender, age, residency status, participation in 4-H/FFA, and membership in the national honor society) and participation in study abroad.

Table 17 also summarizes the demographics of respondents who planned to participate in study abroad. The results show that six percent of the respondents who participated in study abroad were freshmen. It is interesting to note that a little more than a quarter (26.1%) of all freshmen planned to participate in study abroad, which is more than four times the number of freshman participants who had already participated. One-

third of sophomore and junior level respondents indicated the v intend to participate in study abroad. The senior level students appeared the least (5.5%) interested in participating in study abroad. By gender, a little more than a quarter of male respondents indicated they intended to participate in study abroad, while female respondents showed almost three times as much interest in study abroad participation than their male colleagues. Nine out of ten respondents from traditional aged (18 to 24 years old) undergraduates indicated they intended to participate in study abroad. Four out of five white respondents and one out of ten Students of Color planned to participate in study abroad. Four out of ten respondents with rural residence backgrounds planned to participate in study abroad, as compared to six out of ten respondents with urban backgrounds. Results show that study abroad participants, prospective and those who participated earlier, are predominantly (nine out of ten) in-state students. About one-fifth (21.4%) of respondents who were 4-H and FFA club members indicated they intended to participate in study abroad, compared to more than three quarters (78.6%) of respondents who were non-members. Nearly six out of ten (57.4%) respondents who were members of the national honor society indicated to participate in study abroad. In summary, the demographic profile of the students who planned to participate in the study abroad program was: white, female, traditional aged, sophomore and junior level students, members of national honor society, non-members of 4H/FFA with urban residence backgrounds and from the state of Michigan. The only difference was that the proportion of freshmen was increased substantially.

The demographic profile of study abroad participants in this study is consistent with findings from other studies (Chieffo and Griffiths, 2004; Open Doors, 2008;

Institute of International Education, 2007; NASULGC, 2004). The findings of this study indicate that there is lack of diversity among study abroad participants. William (2007) found in her recent research that the proportion of the undergraduate student population studying abroad is influenced by the proportion of study abroad staff and student workers. She found a significant difference in awareness in the proportion of the undergraduate study abroad of the undergraduate student population studying abroad when presentations by study abroad office faculty/staff at student club meetings were implemented as a recruitment activity.

Students' feedback about strengths and weaknesses of the programs and suggestions to enhance programs in CANR

Respondents were asked three open ended questions to identify strengths and weaknesses of the program and solicit suggestions for improvement. This section presents the summary of analysis of the open ended responses. The data for open ended responses were analyzed by using a qualitative approach in three steps. First, each and every statement was carefully read and broad thematic areas were identified by academic major. Second, a code book was developed for each thematic area by assigning a code to each statement. Finally, all the related statements were grouped under each thematic area and presented in frequency tables to better visualize the results at a glance for the overall college. Respondents in various majors from different academic departments and schools in the CANR expressed a wide variety of responses to open ended questions, and some of them were unique in nature and very specific to the particular department or school.

Therefore, an attempt has been made to present students' own voices by providing quotes verbatim for each thematic area as much as possible.

Strengths of the CANR programs

Five unique thematic areas were identified for strengths of the CANR programs, and they are presented in Table 18. Findings indicate that the most frequently mentioned responses were related to the theme of faculty, teaching and academic advising. Respondents spoke very highly about the quality of faculty members, teaching and academic advising. Respondents frequently characterized the CANR faculty members and advisors as 'caring', 'approachable', 'very helpful', 'resourceful' and 'knowledgeable' to name a few.

Strengths	Frequency Mentioned	Percent
Faculty, teaching and academic advising	619	40.3
Hands-on learning and career opportunities	384	25.0
Course curricula	243	15.8
Small class size	133	8.7
Institutional and program reputation	120	7.8
Others	38	2.5
Total	1537	100

 Table 18. Strengths of the CANR programs

Below are a few quotations about faculty, teaching, and academic advising that reflect how the students perceived their teachers, and teaching and academic services they received.

Down to the earth faculty.

Professors who really care about students and provide valuable resources to their students.
The faculty are our greatest strength, they provide a great deal of applied learning, also our extracurricular involvement is key to finding companies through Student Builders and Contractors Association (SBCA) and our career fair.

The faculty is awesome! They are approachable and smart and very helpful.

The teachers are involved in the classroom and bring expertise from the field.

I think they help prepare me for my future.

Great advisor- she knows what she's talking about and sets up a schedule for personal needs, study abroad opportunities.

The second most frequently reported strength by respondents was hands-on learning and career opportunities available in CANR program. 'Hands-on' was the most frequently used word to describe their learning experiences across majors in the college. Respondents indicated they had a high level of satisfaction with 'hands-on' learning through labs work, animal farms, research fields, and study abroad, all of which reflect the real life experience of the marketplace of the world. Respondents also mentioned that they were happy with the career opportunities available through internships and the prospects of job placement after graduation. A few quotations are provided below that reflect the feelings of respondents about their hands-on learning experiences and career opportunities.

Everything we learn in our major, I use it when I go to the farm on the weekend. Hands on activities that are offered.

Opportunity for study abroad, internships, and major specific club opportunities.

I like the experience we as animal science students get on farms and with farm animals, it gives me a better visual of what the instructor is teaching me in the classroom.

High job placement after graduation because of shortage of qualified people with agricultural background.

Applied knowledge that prepares you for the marketplace.

Real life connections with those in the workforce. Prepares the students for a wide variety of environmental careers. Classes build upon prior classes to strengthen understanding of a subject.

There are plenty of opportunities for employment, as well as information about internships, volunteering, and other positions on and off campus.

Course curricula were the third most frequently mentioned strength of CANR

program. The respondents described the CANR course curricula as 'diversified', 'wide

range of courses', 'variety of classes', and 'great curriculum'. The availability of a

variety of classes provided them flexibility in choosing required classes for their major

degree programs. The following quotations reflect the respondents' perceptions about the

CANR course curricula:

There are lots of interesting classes available for me to take, and there are a ton of study abroad opportunities.

Strengths of my undergraduate program have been the variety of classes offered and the opportunities for extracurricular.

There are many classes to choose from, and because of this I am able to create my degree to what I am most interested in.

My program allows students to be involved in a wide array of activities and take classes focusing on desired specializations.

The undergraduate program has a great curriculum, full of awesome information taught by great professors.

There are a lot of materials on fish and wildlife management. The new curriculum with specializations that is being implemented next year seems a lot better. Too bad it did not get changed a couple years earlier.

The classes are very fun and entertaining. The class activities leave you remembering all information learned due to their enjoyability.

The fourth most frequently mentioned strength of the CANR program was small class size. Respondents indicated that because of the small class size, they had more opportunities to interact with professors and advisors on a one-on-one basis. Further, it was easy to get to know other people in the majors, develop relationships, and network. Small classes help develop sense of family or community. Although respondents from across the departments/schools indicated that they liked small class size, the frequency of this response was higher from respondents in the School of Planning, Design, and Construction, Department of Community, Agriculture, Recreation and Resources Studies (CARRS), and Department of Agricultural, Food and Resource Economics than from other departments/schools. The following quotations reflect how students felt their small size classes.

Small classes I love. You really get to know the other individuals within your major. You start to become more of a family.

The small community that is here in CANR everyone knows everyone for the most part and that makes working together on projects or getting help from a friend much easier.

I love the upper level classes that are small enough to have frequent interaction with the professors.

There are small classes and knowledgeable professors that can meet and talk with you if you have trouble. There is a sense of community in the Natural Resources building that makes anyone and everyone approachable.

Classes are small enough that you can have personal interaction with the professors-I like when they know you on a name to name basis.

Finally, institutional and program reputation was indicated as strength of the

CANR programs. Respondents indicated that they were proud to be in their current major

in one of the nation's top programs. The expressions below indicate how the respondents

perceived institutional and program reputation.

MSU is well known for their contribution in agriculture. Go green!

Highly regarded as one of the top turf programs in nation.

The strengths of Fisheries and Wildlife is that MSU has one of the greatest programs in the country for this degree. It fits my interests as I'd like to someday work in a research field doing conservation.

The undergraduate Landscape Architecture program here at MSU is one of the best at preparing its students for immediate success in the field as well as prepares them for a graduate degree.

Our program is the largest Dietetic program in the United States and has a good reputation among dietetic internships directors and professional organizations. I like the fact that MSU is known for the Packaging degree. I like that the professors that teach here are some of the best, for this degree, in the world.

The Interior Design program at MSU is a very good one. They push us to be the best we can be and we learn how to be professional and prepared.

I think the Construction Management program is a wonderful program. Being a girl in Construction Management program, I feel very comfortable.

In conclusion, finding regarding the strengths of CANR programs are in

agreement with findings of other studies. A recent national survey of four-year public

colleges and universities revealed that valuable course content within major,

knowledgeable faculty and excellent quality of instruction, approachable and

knowledgeable academic advisor about requirements in major, varieties of courses

available, adequate and accessible computer labs and library resources, and institutional

reputation were the institutional and academic strengths (Noel-Levitz, 2008).

Weaknesses of the CANR programs

Students were asked to indicate specific comments about the weaknesses in their academic majors. Table 19 presents the summary of weaknesses of the overall CANR

י. ס גן ה א

gı

R

program. Results show that the most frequently indicated area of weakness was related to poor quality of teaching and academic advising. Respondents frequently characterized faculty members as 'unprepared' 'unorganized', 'inexperienced', 'lack of technical knowledge in the subject matter', 'terrible', and 'discouraging'. Respondents also indicated that some professors put unnecessary emphasis on their research projects, which students were not interested in. It was also indicated that some professors are very good in research but performed extremely poor in teaching and overall course delivery. Respondents raised the issue about Teaching Assistants (TAs), as many professors were heavily relying on them. Most TAs lacked experience in teaching and were often poor in English language proficiency.

Weaknesses	Frequency Mentioned	Percent
Poor quality of teaching and academic advising	339	28.3
Course curricula are very general not specialized and needs students' inputs	205	17.1
Irregular course offering and scheduling conflict	203	16.9
Limited hands-on learning and career opportunities	165	13.8
Less useful and unorganized required courses	149	12.4
Lack of communication and availability of up-to-date information	52	4.3
Others	85	7.1
Total	1198	100.0

Table 19. Weaknesses of the CANR programs

Respondents also expressed dissatisfaction with regard to academic advising services they received. Very often, respondents indicated that academic advisors did not have enough knowledge about course requirements in certain majors. Some advisors were very hard to reach (unapproachable) and did not respond student's e-mail in a timely manner. It was also indicated that students were having a hard time finding an

advisor. The following statements from students reflect their level of frustration with

regard to quality of teachers, teaching and academic advising at CANR.

Where are the professors? It seems many of the classes I have had were taught by less than stellar graduate students, teachers' assistants, etc.. I don't feel I would be walking away fully prepared to enter my field of study if I stay here at MSU to graduate. The fact that to apply to an art focused major we don't have a portfolio taken into consideration is very disappointing. Being able to perform well on a test does not mean someone is capable of conveying a design to a client. If one has a 3.8 GPA but can't put pencil to paper, what good are they in a very visual, artistic career?

Professor that have never been on a farm.

We have a professor here and there that don't know what they're doing. Therefore, students lose interest in the major in some situations.

Professors with 10-year that do not feel obligated to concern themselves with their undergraduate classes.

New professors seem understandably unprepared.

Because the professors' primary focus is not necessarily teaching, many of them can't convey the information very well.

Many of my teachers are experts in their field but not experts in educating. They are terrible teachers!

Professors put unnecessary focus on their research interests in classes, often taking away from time that should be spent teaching the actual course topic.

I think there could be a little more information about how to prepare and lay out a schedule and a "plan of action" for my four years of college, at the beginning of my freshman year. It would be helpful to learn more about courses other students have taken and what are some things to look forward to right from the start. However, I entered this college as a no-preference major within CANR. I changed my major after having one Crop and Soil Science introductory class because of the encouragement and information provided by that professor as well as my involvement in its student organization. I believe the advisors to no preference students could have done more for me in the summer before I came to MSU and in my first semester here, to introduce me to my major options and to help narrow my search. There were many more opportunities I think I could have taken advantage of, had I known about them.

The advising and classes mix up often and is not consistent therefore you are left to figure out which classes to take and requirements on your own. There seems to be a gap even with the advisor and what they know, especially about the Agriscience education part of the degree.

I was not provided an advisor in my major at orientation and I was not aware of many things when first transferred to MSU.

One academic advisor, she was very discouraging and seems to play favorites.

The advisor runs a strict academic schedule program, discourages students from taking more than 14 credits, doesn't adapt well to students desire for course rearrangement when pre-planning a schedule. Also, does not welcome walk-ins.

I think that the advising is lacking a personal touch. I do most of my planning without the help of an advisor.

The second theme that emerged from open ended responses to weaknesses about

the CANR program was course curricula. Respondents' frequent comments about course

curricula were: 'lack of focus on production agriculture', 'outdated and irrelevant', 'lacks

international dimensions', 'too focused on 4H/FFFA students', and 'needs revision and

student inputs'. Respondents also indicated that curriculum lacks classes to be certified

by the professional organization or association in particular fields. The following

quotations from respondents reflect students' perceptions about weaknesses with regard

to course curricula at CANR.

There is not enough focus on production agriculture. There are a number of students wishing to return to the farm, but the curriculum does not focus closely on skills needed to succeed there.

I think that some of the classes we are required to take will be soon outdated and irrelevant in the work world. I think that it is important to gain a stronger understanding of materials before the synthesis class of sophomore year.

Many of the design classes don't separate graphics from design. They should be separated into two different classes. Also, there should be more technology used such as AutoCAD, sketch up, and Adobe Creative Suite. That should be integrated into the program and less learning hand graphics.

Need more international credit validations, more options for study abroad in relation to my major.

That you focus way too much on FFA and 4-H. Agriculture is not the only component of this college and too often you neglect the natural resources.

That it is a very narrowly based major. It is for livestock and caters to the needs of students interested in pursuing a livestock based career. While that is great for those students, others such as those interested in equine and small animal really have no options. I came in as a student hoping to pursue a career in horses, but after seeing the non diverse manner of the program, and the somewhat limited options in it, I am switching my major., I feel this is especially true for students interested in small animal, aside from one class the program really has nothing to provide the students and leaves them without any options. There are many students who are not interested in livestock production that are struggling to get through the program.

Weak curriculum—needs revisions and student input. I was part of a student focus group that gave input on curriculum, but in the 2 years since then there have been no changes.

Not enough classes in all areas of the food and consumer products industry. Classes about category management would be beneficial. Too much emphasis placed on "selling".

The third area of weaknesses of the CANR program as reported by respondents

was related to course offering and scheduling issues. Many respondents indicated that

most of the required courses were offered in one semester, causing them scheduling

problems that affected their ability to graduate on time. Some respondents also indicated

that there were lot of hours in between classes that do not fit with commuter and part-

time students (working students). It was also mentioned that not enough courses were

offered in the summer. The following quotations portray the students' problems

associated with course offerings and scheduling.

Many classes are only offered during the Spring, and I think they should be offered year long. Expected time of graduation can be extended just because of one class not being offered in both semesters. Since our major is so small, all the classes aren't offered every semester. It becomes a hassle to schedule because there is no leeway. If a class is only offered at 8 AM, you have to take it at 8 AM or wait until full year to try again.

I think the major weaknesses of my Ag. Communication and Ag. Education majors are that there are little to no classes offered pertaining specifically to these courses within the CANR. All courses that we take to meet these requirements are 'intro to this' and 'intro to that'. We are given no classes about how to communicate about agriculture within and outside of the agricultural industry. We are given very little opportunity about how to teach agriculture and vocational education. A lot of us come in with 4-H/FFA background and can handle what agriculture is. We want to know how to take the knowledge we already have and apply it.

There are no classes offered that teach me how to teach agriculture. With the major now switching over to a concentration (although this does not directly affect me), it is hard to find classes that are actually applicable. Also, when we tried to meet as an Agriscience education club, we were discouraged from doing so. In all honestly, I don't feel that the college or university actually care about me or my major.

I have trouble fitting elective classes in my schedule because there are not many choices and usually there's only one section (usually over laps with another class) and sometimes are only offered 1 semester a year.

The biggest weakness I have noticed in this major so far is the availability of the classes I need. I transferred in December and the major is so strictly set up that I pretty much have to wait until fall to take classes that pertain to my major. Also, I was really hoping to have an opportunity to study abroad but again, the major is very strict and there are no classes available for me to take abroad. (Although I don't think that is MSU's fault, I think it is more the regulations for the dietetics major).

Limited hands-on learning and career opportunities was another theme that

emerged from open ended responses as a weakness of the CANR program. Respondents

stated that they had limited hands-on experiences in computer technologies, lack of

availability of internships and less focus on study abroad in certain majors, and lack of

international case studies in teaching. The following statements are some of the

examples of lacking hands-on learning and career opportunities in the CANR program as

expressed by respondents.

Less emphasis with computer technologies such as AutoCad, Photoshop, and Revit, yet we waste hours of our time on hand lettering and drafting.

Need more hands on, and practical application of practices, we learn all kinds of research techniques but students need to be practical and have real world common sense, not everything is as planned out as they are in study trials.

A lot of the courses are lecture based and do not focus enough on developing problem solving skills to use what we are learning.

Personally, I feel like I haven't been introduced to very many study abroad opportunities. I wish they wouldn't have taken away the community based parks and recreation major.

It is harder to study abroad, because the classes are accredited, so I cannot take them somewhere else. This is especially true for me, because I came in with almost all of my general education courses done.

I think the weaknesses are the availability of internship, etc.. I have applied for a few, and even research positions within my major, and they all tell me I need more experience. How do I get more experience if I can't work on as a Research Assistant or do an internship?

Not enough 'real world' class work. They should teach more from case studies then about history.

Less useful and unorganized required courses were other frequently mentioned weaknesses of the programs. Many respondents indicated that some of the university required courses such as Integrative Studies in Arts and Humanities (IAH), Integrative Studies in Social Sciences (ISS), Integrative Studies in Physical Science (ISP), Integrative Studies in Biological Science (ISB), etc. were not useful on the one hand and on the other hand they took a substantial amount of time, causing delayed graduation. Respondents also indicated that most internships take six months, which also causes a delay in graduation. Some of the prerequisite courses overlap and credits were wasted. These course requirements are causing more trouble to transfer students than non-transfer because they have to take many required courses, which causes them to be delayed in graduation. Some of the statements pertaining to course requirements and organization as

expressed by respondents are:

We have classes like IAH, ISS, ISP, ISB, etc.. That take away from what we would like to be doing. Those classes are such a joke & will not make us "more well rounded individuals".

You cannot get into the program until your junior year, so you spend 2 years taking required classes and if you don't get in, you have to stay at college longer because you have wasted so many credits on those major specific courses.

The weaknesses are the fact that we have to take such boring or rigorous prerequisites before we get to the material that we are truly interested in.

Changing the program and thus delaying graduation for almost all students in my class level----It is not fair to change the program for students that are already in it. I am referring to the changes that no longer allow Construction Management Program (CMP) students to take all of their 400 level classes in one semester nor obtain credit for a professional internship. It was not acceptable by any means to change to program like that for students who already declared CMP as their major.

It's harder to graduate in the normal 4 years because most internships are 6 months long. Though you can always take summer classes. Also, participation in study abroad programs have decreased because most people feel they don't know enough information to go after their freshman year. But then a lot of students end up doing one or two internships which usually takes up an entire summer, not allowing them to take a study abroad.

I feel as though a lot of the prerequisites overlap and credits are wasted on them rather than on more directly food science related classes. I don't feel totally prepared to go into industry.

There are so many classes required, after transferring in, I can't graduate in 4 years, even though all of my previous credits transferred in.

Lack of communication and availability of reliable information were other

weaknesses of the CANR programs. Some respondents felt that there was a lack of

communication between undergraduate students in the CANR and graduate students,

faculty, and other majors in the college. Many respondents felt that they did not find

correct information about their degree requirements and occasionally their advisors also

were not exactly sure about the requirements. Respondents felt that the college website was outdated, and it was not very useful to students' information needs. Some respondents indicated that there was a lack of information on careers and internships. Also, some respondents indicated that there was a lack of advertisement of the college majors. Many potential students and parents are not aware of the existence of some academic majors in the CANR. The following quotations reflect students' feelings about communication and information.

Communication with the graduates students and research faculty. I know that we get emails but I think it would be a good idea to have posters up or to publish a pamphlet of sorts listing research opportunities.

I think there is a lack of communication with other majors in the college. Agriculture students and students from no Agriculture related majors don't have a lot of interaction.

There is a lot of confusion about course requirements between advisors. Also, there are some faculty members who seem to be unqualified to be teaching some of the courses required/offered for my major.

Weaknesses are that no one really knows about the major and how many opportunities are out there for students with a Food Industry Management major.

Website is outdated.

It is not very well advertised. I had never heard of Dietetics before college and did not know how great the program at MSU was before college.

Not much information given on jobs that can be attained upon graduation.

Not enough career/internship information/help. I think a career fair would be greatly beneficial to the students.

Suggestions to improve the CANR programs

Respondents were asked to offer suggestions to improve the CANR programs.

Table 20 summarizes their suggestions. A summary of suggestions by department/school

is provided in Appendix U. The themes for suggestions were the same as the themes identified as weaknesses of the CANR programs. Since the suggestions offered by the respondents were self-explanatory, a brief description for each theme of suggestion and some quotations are provided in this chapter.

Suggestions	Frequency Mentioned	Percent
Hands-on learning and career opportunities	332	29.5
Faculty, teaching and academic advising	216	19.2
Course curricula	182	16.2
Course offering	163	14.5
Course requirements and organization	116	10.3
Communication	64	5.7
Others	53	4.7
Total	1,126	100.0

Table 20. Suggestions to improve the CANR programs

i. Suggestions about hands-on learning and career opportunities

Respondents offered a wide range of suggestions to enhance hands-on learning and career opportunities for students. The suggestions included maintaining and visiting research farms, expanding service learning, internships, and study abroad opportunities, inviting speakers from industries, and using technology in teaching. Some selected quotations with regard to recommendations about hands-on learning and career opportunities are provided below:

Keep the farms!!! Great learning tools.

Have tours of farms to see how farmers actually operate. It would give us the opportunity to see how farmers deal with the issues we have discussed in class.

Continue to keep animal numbers high at the farms because it helps give a broader, more well-rounded experience for students, as they have a greater opportunity to see a wider variety of situations. For instance, animal health, production settings, performance data, etc..

Have more real life examples, let us put our hands in a loam textured soil, touch the difference between a tunic and a non tunic bulb, feel primed seed, etc.. Encourage study abroad program to freshman students. They had an introduction into the course through 101 and the experience would help them to understand their classes better. It's sort of which comes first, the chicken or the egg type deal. Sometimes you have to go somewhere first and not totally understand things, but it'll apply to much more knowledge later because you can picture it now. And sometimes you need the background knowledge first. But for this circumstance I think it would be fine for students to go abroad and have the opportunity for one or more internships later.

A public speaking, professional development skill course that brings in industry leaders and takes students out of the classroom to seek opportunities with agribusiness and other leaders in the industry.

... push service learning within the major as much as study abroad. There are so many nutritional needs in Lansing and our major has enough people to fill those needs.

...more emphasis should be made on the technologies that firms are using today (like AutoCad and Photoshop) so that Interior Design students are actually ready to go out and work in the real world.

ii. Suggestions about faculty, teaching and academic advising

Respondents suggested that teachers should be knowledgeable and passionate

about the subject they are teaching, caring to students, and punctual for class.

Respondents also suggested that faculty members should balance teaching and research

to enrich students' learning. With regard to academic advising, respondents suggested

that advisors should be more involved in helping students schedule courses, transfer

credits, and answer questions related to course requirements. Students were frustrated

because they had to meet three or four people to get correct information about their

queries. Students also suggested that the college should develop relationships early, in the

freshman year. The following quotations suggest the improvements needed with respect

to teaching and academic advising in the CANR.

Try to find professors who care about each and every class they teach. Who do not show up late and blow students off during office hours.

Equally weigh research and student learning making a powerful combination. Faculty with too much research affects students poorly.

As far as advising, it would be really helpful if for the pre-vet track, advisors could get together with pre-vet advisors and make sure they're on the same page. Or at least be able to set the student up with an appointment with a pre-vet advisor. One thing that frustrates me sometimes is that after seeing one advisor, it seems you then have to go see three more people before you can really get things solved or have all your questions answered.

Better counseling with the advising. Coming into this major I did not have the best grades and the academic advisor gave me really no hope or encouragement for succeeding in this major which is a really horrible feeling and I definitely never want to go back to her to ask her advice but know I will eventually have to. That experience completely ruined my whole intake on academic advising for the dietetics program.

I would recommend having advisers be more involved in helping their students get through the stressful times of scheduling and transferring credit by walking them through it so that no one gets confused or overwhelmed. That way the adviser has a good idea of what to expect next time and the student has the help right there so that they don't get confused.

iii. Suggestions about course curricula

Respondents felt that the curricula should reflect the current educational trends.

They suggested that courses should have an international dimension, an option for

students who are returning to the family farm, an up-to-date and realistic, and periodic

feedback from students and industries. Respondents also suggested the creation of a

better system of course and faculty evaluation. The following quotations help better

understand the course curricula students prefer:

Do a better job of recruiting students to MSU and change the curriculum to better suit the current educational trends.

Add international classes with a focus on the effects of globalization on the food industry.

Add an option for farm kids returning to the family farm.

I would like to farm someday so I would like there to be a major that considers the Agronomy program and the Agribusiness program all in one major.

I would suggest for the curriculum to be more up to date and realistic to what professionals are actually doing in the field. Keep check on what the students are actually learning and have the professors be more helpful in what the student can do to improve their skills, rather than saying a couple sentences about what was missing in a project. Also, a huge problem I have found is that there is no connection to companies who can come to recruit people from our major. It is so difficult to find a job and we have to travel and call countless places just to get someone to talk to us. I hear other people in other majors who just have to go to a career fair or a company comes and gives informational meetings. In our major, there is no point in going to a career fair because there are never any interior design companies there.

In the dietetics major, there are two main aspects that are widely focused on: clinical and food service management. I think that these two categories should be treated more separately. (Clinical nutrition focuses more on clinical and foodservice focuses more on foodservice management type classes).

I recommend asking students to fill out class and major expectation reports each year and having the faculty work them into the curriculum.

Create a better system for course and professor evaluations. This is the best way to see what things are working and what aren't. With the current system, it is difficult, at times, to answer the evaluations fully and thus let your voice be heard.

iv. Suggestions about course offering

With regard to course offerings, respondents suggested that the CANR should

offer more areas of specialization and electives and offer required classes more often

including in summer. Some of the statements with regard to course offerings are as

follows:

Offer more areas for specialization (i.e. International agriculture, animal behavior, dairy science).

Offer a specialization for crop and soil sciences and some through the animal science department as well, for example beef or dairy management.

Offer the required classes more often, and the non-required classes more than once every 4 or 6 semesters - scheduling is a nightmare - it seems like the required classes are all held at the same time (10:20 seems to be the magic time in ANS).

Prerequisites and the semester in which classes are offered (a great deal of our required classes are one semester only) have made it difficult to evenly space courses so that one semester is a breeze, and the following semester is barely tolerable.

More classes that are offered over the summer at MSU off campus sites.

More elective courses available. There are many things I would like to learn such as more computer related skills and green design or other in depth areas, but never have the option.

v. Suggestions about course requirement and organization

Students felt that some of the university required courses were not useful and

relevant to their academic major. Thus, they recommended the elimination of some of those classes. Some students indicated that they were interested in some classes in the Agricultural Technology program; however, they could not take those classes because it is a non-academic program. Therefore, students suggested that they should be allowed to take certain courses in which they are interested, and the credits should be counted toward their degrees. Also, students suggested that projects assigned by the professors should be relevant to students' learning goals. Below are some suggestions related to course requirements and organization.

Eliminating the ISS, IAH, ISB/P requirements. They are not helpful and are a waste of tuition money.

Cut out the irrelevant and redundant classes that the university forces you to take. Give credit for come Ag-Tech courses because they really pertain to my interests. Allow the 4-year students to take some of the 2-year Ag-tech courses for specific species while they are completing their Bachelor's.

I would say that a lot of the projects assigned by professors are extremely pointless and do not provide any learning tools for the student other then wasting the student's time. I feel that the topics of the classes need to be more diverse because the material right now is continuously repeated in several classes. There needs to be more effort on trying to connect the Food Industry Management and Agri-business Management major to other aspects of the world than just the food industry because I have found that I can apply the things I have learned from Food Industry Management/Agribusiness Management can be used just as good to other things that are not usually brought up in class.

Slow down some of the courses because the classes begin to use information that was used in other classes and that professor may not have taught the information well enough for it to be brought into another class. So, I guess make sure the professor is a good teacher!

vi. Suggestions about communication

Students preferred more communication between students and staff, and between

people from different academic disciplines within the college. Some students indicated that they should be informed in advance about the upcoming changes in the academic programs and availability of scholarships. They suggested that information should be easily available through university and college websites about the course requirements for graduation, graduate school information, and opportunities for prospective students. Students also suggested that information about the CANR programs should reach to high school students before they come to MSU. A few statements with regard to communication issues are quoted below:

More communication between people involved with different species. The livestock people keep to themselves, the horse people keep to themselves, and both are somewhat uninviting and often downright mean to city kids with only small animal or no animal experience. Including small animals in curriculum would help make the playing field a little more level.

More communication between students and staff. Yes, they're approachable, but it's not always known what's going on and when.

Marketing of the program to high school students before they come to MSU.

Update the website about what classes are required for graduation.

Provide more information on graduate school and opportunities.

Give more notice for all the available scholarships. A couple of friends and I tried to apply but by the time we were told about it, it was too late and we did not have time to get recommendation letters.

Make available more information about university owned sites and possibilities for internships or jobs.

Make students more aware of upcoming changes, prior to making those changes final, so students can prepare for class cancellations, or the ending of programs that they perhaps originally came to this university for.

Conclusions and Recommendations

This study aimed at understanding students' perceptions about course offerings, faculty support, satisfaction with academic advising, internationalization of curricula, and strengths and weaknesses of the undergraduate program in the CANR at MSU.

With regard to course offerings, it can be concluded that respondents felt that most required courses were offered every year. Similarly, a high majority of respondents agreed that courses were taught by experienced faculty members who are approachable and accessible outside of classrooms. However, compared to course offering and faculty support, a majority of respondents agreed that courses were not scheduled at convenient times. Overall, respondents were positive about course offering and faculty support to them irrespective of their gender, age, ethnicity, residency (in-state vs. out-of-state status), academic status (class level), and residence (rural, suburban, and urban).

CANR students are satisfied with the academic advising services. Findings indicate that the CANR advisors are easily accessible, knowledgeable about the degree

requirements, and helpful to their students. Respondents indicated that the major advisors' encouragement to participate in study abroad and voluntary programs was low as compared to the encouragement in other academic support and services. Further, students' perceptions about academic advising do not vary by demographic characteristics such as gender, ethnicity, residency status, academic year, residence (rural, suburban and urban) and their membership in the national honor society. However, students' perception about academic advising service varies by their age and personal experience working in organizations related to agriculture. Older students and those who participated in 4-H and FFA activities tend to be more satisfied with academic advising than the younger students without 4-H and FFA experience. Overall, the results from this study indicate that undergraduate students in CANR at MSU are satisfied with the academic advising services.

Although there is no universal standard for measuring the extent of internationalization of curricula in higher education, the proportion of students taking courses focusing on international issues, involvement in international research and outreach programs, participation in study abroad, and faculty sharing international issues and/or case studies in classroom teaching and discussions were relatively low.

The demographic profile of study abroad participants in CANR resembles that of the national demographic profile of study abroad students. Findings showed that study abroad participants are predominantly White Caucasian female students, which indicates that there is lack of diversity among study abroad participants.

Open ended responses were helpful to determine the strengths of the CANR program. The strengths of CANR are experienced and competent faculty members, good

academic advising, hands-on learning and career opportunities to students, a wide range of course curricula better suited to students' needs and interests, and college reputation. Despite these strengths, respondents indicated that unprepared and uncommitted faculty members, inexperienced Teaching Assistants, and unwelcoming and nonresponsive advisors were some of the weaknesses of the college. Other weaknesses included narrowly focused and overlapping curricula. Offering of required courses in one semester and lack of course offering in the summer have caused inconvenience in academic planning and subsequently resulted in a delay in time to graduation. Students do not seem happy with some university required courses such as IAH, ISS, ISP, and ISB and they did not perceive these courses as highly relevant to their majors. Some felt that taking these courses was waste of time and tuition money, and also affected on taking other required courses for their majors.

Respondents offered a number of suggestions for improvement of the programs in the CANR. Some of the most important suggestions included providing more hands-on learning and career opportunities, promoting more effective teaching and academic advising, offering broad base curricula on a regular basis, and more communication and availability of information through electronic media such as e-mail and websites.

Based on the conclusions about findings of this study, it is recommended that:

 Academic advisors should encourage students to participate in study abroad and get them more involved in research activities. They should encourage minority students to participate in both study abroad and research programs. Both activities are important to enhance employability skills upon graduation.

- Academic advising on career services should be equally emphasized along with academic planning so that students see the connection between their academic planning and their career goals. The college should invite more industry representatives for talks, which may provide more internship opportunities to students.
- iii) The college should promote the culture of the scholarship of teaching and learning by encouraging faculty members to integrate their research outcomes into teaching in a subtle way so that students understand the value of research in the teaching and learning process.
- iv) The college should offer required courses more frequently and schedule courses in such a way that commuter, working students, and non-traditional students do not have problems developing an academic plan. This may enhance study abroad participation and overcome the problems associated with delayed graduation.
- v) Help students realize the value of university or college required courses from the perspective of the importance of liberal education.
- vi) Encourage faculty members to introduce more international content into
 classroom teaching and discussions. Since faculty members are the drivers and
 main actors in internationalization of higher education, it is important to make
 sure that they have enthusiasm, opportunities, and recognition in this endeavor.

The overall results of this study indicate that students were happy with course curricula and academic advising services they received. It is suggested that future studies be conducted in the following areas.

- i) Follow-up studies of the CANR alumni to assess the usefulness of undergraduate education in the workplace.
- ii) Conduct employer assessment to assess the career preparation and competencies of the CANR graduates.
- iii) Conduct a study to determine the value of study abroad on students' knowledge, skills, and attitudes.
- iv) Perceptions of both participants of the study abroad program and faculty members on internationalization of program could be valuable.

REFERENCES

- Acker, D. G. (1999). Improving the Quality of Higher Education in Agriculture Globally in the 21st Century: Constraints and Opportunities. *Journal of International Agricultural and Extension Education Summer 1999*: 47-53.
- Acker, D. G. & Scanes, C. G. (1998). A Case for Globalizing U.S. Colleges of Agriculture. Journal of International Agricultural and Extension Education 5(1): 59-62.
- Afshar, T. & Dhiman, S. (2008). Assessment of the Excellence of Academic Advising: Lessons Learned. *Journal of College Teaching & Learning 5*(3): 51-60.
- Allen, G. (2004). Role of Faculty in International Education. A background paper for "A Call to Leadership: The Presidential Role in Internationalizing the University". The National Association of State Universities and Land-Grant Colleges (NASULGC).
- Armstrong, J. S. (1998). Are Student Ratings of Instruction Useful? American Psychologist 53: 1223-1224.
- Arubayi, E. A. (1987). Improvement of Instruction and Teacher Effectiveness: Are Student Ratings Reliable and Valid? *Higher Education 16*(3): 267-278.
- Association of American Colleges and Universities (2007). College Learning for the New Global Century. Association of American Colleges and Universities (AACU).
- Astin, A. W. (1991). Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education. Macmillan Series on Higher Education. Macmillan Publishing Co. New York.
- Astin, A. W. (1993). What matters in college: Four critical years revisited. San Francisco: Jossey-Bass.
- Bean, J. P. (1982). Student attrition, intentions, and confidence: Interaction effects in a path model. *Research in Higher Education* 17(4): 291-320.

- Boyer Commission (1998). Reinventing Undergraduate Education: A Blueprint for America's Research Universities. Boyer Commission on Educating Undergraduates in the Research University. State University of New York at Stony Brook for the Carnegie Foundation for the Advancement of Teaching.
- Braskamp, L. A., Wise, S. L. & Hengstler, D. D. (1979). Student Satisfaction as a Means of Departmental Quality. *Journal of Educational Psychology* 71(4): 494-498.
- Broadbridge, A. (1996). Academic advising a traditional or developmental approaches?: student perspectives. *British Journal of Guidance and Counselling 24*: 97-111.
- CANR Homepage. (2009). International Programs. Retrieved March 23, 2009, from http://www.canr.msu.edu/canrhome/intn_prog.htm.
- Chen, Y. & Hoshower, L. B. (2003). Student Evaluation of Teaching Effectiveness: an assessment of student perception and motivation. Assessment & Evaluation in Higher Education 28(1): 71-88.
- Chieffo, L. & Griffiths, L. (2004). Large-Scale Assessment of Student Attitudes after a Short-Term Study Abroad Program. *Frontiers: The Interdisciplinary Journal of Study Abroad 10*: 165-177.
- Corts, D. P., Lounsbury, J. W., Saudargas, R. A. & Tatum, H. E. (2000). Assessing Undergraduate Satisfaction with an Academic Department: A Method and Case Study. College Student Journal 34(3): 399-408.
- Donald, J. G. & Denison, D. B. (1996). Evaluating Undergraduate Education: the use of broad indicators. Assessment & Evaluation in Higher Education 21(1): 23-39.
- Endo, J. J. & Harpel, R. L. (1982). The effect of student-faculty interaction on students' educational outcomes. *Research in Higher Education 16*(2): 115-138.
- Fielstein, L. L., Scoles, M. T. & Webb, K. J. (1992). Differences in Traditional and Nontraditional Students' Preferences for Advising Services and Perceptions of Services Received. NACADA Journal 12(2): 5-12.
- Freeman, K. (1999). No Services Needed?: The Case for Mentoring High-Achieving African American Students. *Peabody Journal of Education* 74(2): 15-26.

- Frey, P. W. (1976). Validity of Student Instructional Ratings: Does Timing Matter? *The Journal of Higher Education* 47(3): 327-336.
- Greenwald, A. G. (1997). Validity Concerns and Usefulness of Student Ratings of Instruction. *American Psychologist* 52(11): 1182-1186.
- Grewe, A. (2007). Adapting Academic Advising Strategies to Meet the Needs of a Diversified Student Body. *Academic Advising Today 30*(2): 4 & 21.
- Guinn, D. & Mitchell, R. (1986). Academic Advising: And Different Expectations. NACADA Journal 6(2): 99-105.
- Hanner, S. (2000). An assessment of educational and personal needs of adult women students: Undergraduate and graduate. *Dissertation Abstracts International*, 61 (11), 4256A. (UMI No. AAT 9994054)
- Hathaway, R. S., Nagda, B. A. & Gregerman, S. R. (2002). The Relationship of Undergraduate Research Participation to Graduate and Professional Education Pursuit: An Empirical Study. *Journal of College Student Development* 43(5): 614-631.
- Hayward, F. M. (2000). Internationalization of U.S. Higher Education: Preliminary Status Report 2000. American Council on Education.
- Hearn, J. C. (1985). Determinants of college students' overall evaluations of their academic programs. *Research in Higher Education 23*(4): 413-437.
- Hembroff, L. A. & Clark, K. (2001). Undergraduate Academic Advising at M.S.U.: Report of the 2001 Survey. Office for Survey Research, Institute for Public Policy and Social Research, Michigan State University.
- Herndon, J. B., Kaiser, J. & Creamer, D. G. (1996). Student preferences for advising style in community college environments. *Journal of College Student Development* 37(6): 637-648.
- Hester, E. J. (2008). Student evaluations of advising: moving beyond the mean. College *Teaching 56*(1): 35-38.

- Higgins, R., Hartley, P. & Skelton, A. (2002). The Conscientious Consumer: reconsidering the role of assessment feedback in student learning. *Studies in Higher Education* 27(1): 53-64.
- Hu, S., Kuh, G. & Gayles, J. (2007). Engaging Undergraduate Students in Research Activities: Are Research Universities Doing a Better Job? *Innovative Higher Education 32*(3): 167-177.
- Hurtado, S., Sax, L. J., Saenz, V., Harper, C. E., Oseguera, L., Curley, J., et al. (2007). Findings from the 2005 Administration of Your First College Year (YFCY): National Aggregates. Higher Education Research Institute, University of California, Los Angeles.
- Institute of International Education (2007). Meeting America's Global Education Challenge: Current Trends in U.S. Study Abroad & The Impact of Strategic Diversity Initiatives. Institute of International Education (IIE).
- James, A. K. (2001). Student Ratings: Validity, Utility, and Controversy. New Directions for Institutional Research 2001(109): 9-25.
- Katkin, W. (2003). The Boyer Commission Report and its Impact on Undergraduate Research. *New Directions for Teaching and Learning 2003*(93): 19-38.
- Kotler, P. & Fox, K. F. M. (1995). Strategic Marketing for Educational Institutions. Englewood Cliffs, New Jersey: Prentice Hall.
- Mason, S. C., Eskridge, K. M., Kliewer, B., Bonifas, G., Deprez, J., Pallas, C. M., et al. (1994). A Survey: Student Interest and Knowledge of International Agriculture. NACTA Journal 38(2): 34-38.
- McAnulty, B. H., O'Connor, C. A. & Sklare, L. (1987). Analysis of Student and Faculty Opinion of Academic Advising Services. *NACADA Journal* 7(1): 49-61.
- Michigan State University. (2009). Boldness by Design: Strategic Positioning of Michigan State University. from http://boldnessbydesign.msu.edu/.
- Milburn, S. D. (1994). An analysis of the influences of gender, race and age on student preferences for the delivery of academic advising services. *Dissertation Abstracts International*, 55 (10), 3107A. (UMI No. AAT 9507123)

- Miller, R. L. & Ware, M. E. (1999). A Conversation With Wilbert J. McKeachie: Involving Undergraduate Students in Research. *Psi Chi Journal of Undergraduate Research 4*(3): 87-93.
- Nagda, B. A., Gregerman, S. R., Jonides, J., Hippel, W. v. & Lerner, J. S. (1998). Undergraduate Student-Faculty Research Partnerships Affect Student Retention. *The Review of Higher Education 22*(1): 55-72.
- NASULGC (2004). A Call to Leadership: The Presidential Role in Internationalizing the University. National Association of State Universities and Land Grant Colleges (NASULGC).
- National Survey of Student Engagement (2007). Experiences That Matter: Enhancing Student Learning and Success. Indiana University Bloomington.
- Nnadozie, E., Ishiyama, J. & Chon, J. (2001). Undergraduate Research Internships and Graduate School Success. *Journal of College Student Development 42*(2): 145-156.
- Noel-Levitz, I. (2008). National Student Satisfaction-Priorities Report: Executive Summary. 2008 National Research Report. Retrieved October 20, 2008, from https://www.noellevitz.com/NR/rdonlyres/1F082DB7-6D9A-4238-BEF1-9CB4B099B8FF/0/NatSatisfactionReportExecutiveSummary08.pdf.
- Noel-Levitz Inc. (2006). Advising Needs Report: Summary of Findings from National Advising Needs Survey. Retrieved October 20, 2008, from https://www.noellevitz.com/NR/rdonlyres/53A3CF6F-1408-4344-8DE2-00ADAD02B074/0/ADVISING_pdf_1106.pdf.
- Open Doors (2008). Open Doors 2008: U.S. Students Studying Abroad. Institute of International Education (IIE). Available at http://opendoors.iienetwork.org/?p=131592.
- Open Doors (2008). Profile of U.S. Study Abroad Students 1995/96 2006/07. Institute of International Education (IIE). Available at http://opendoors.iienetwork.org/?p=131562.
- Pace, C. R. (1985). Perspectives and problems in student outcomes research. New Directions for Institutional Research 1985(47): 7-18.

- Rodin, M. & Rodin, B. (1972). Student Evaluations of Teachers. *Science* 177(4055): 1164-1166.
- Russel, M. & Russell, B. (2008). Predicting Student Satisfaction with Academic Advising. *The Mentor 10*(3).
- Saenz, V. B. & Barrera, D. S. (2007). Findings from the 2005 College Student Survey (CSS): National Aggregates. Higher Education Research Institute, University of California, Los Angeles.
- Sanders, L. & Burton, J. D. (1996). From retention to satisfaction: New outcomes for assessing the freshman experience. *Research in Higher Education* 37(5): 555-567.
- Seppanen, L. M. P. (1981). Faculty and Student Attitudes towards Academic Advising. Unpublished doctoral dissertation, The University of Alabama.
- Smith, J. S. (2002). First-Year Student Perceptions of Academic Advisement: A Qualitative Study and Reality Check. *NACADA Journal 22*(2): 39-49.
- Spencer, K. J. (1994). Student perspectives on course and teacher evaluations. Dissertation Abstracts International, 55 (04), 881A. (UMI No. AAT 9425246)
- Strayhorn, T. L. (2008). Academic Advising Needs of High-Achieving Black Collegians at Predominantly White Institutions: A Mixed Methods Investigation. *The Mentor* 10(2).
- Stumpf, S. A. (1979). Assessing academic program and department effectiveness using student evaluation data. *Research in Higher Education 11*(4): 353-363.
- Tinto, V. (1987). Leaving College: Rethinking Causes and Cures of Student Attrition. Chicago: The University of Chicago.
- Twombly, S. B. (1992). Student Perspectives on General Education in a Research University: An Exploratory Study. *Journal of General Education 41*: 238-272.
- Williams, F. D. (2007). Study Abroad and Carnegie Doctoral/Research Extensive Universities: Preparing Students from Underrepresented Racial Groups to Live in

a Global Environment. Dissertation Abstracts International, 68 (10), (UMI No. AAT 3286526)

- Worley, T. & Casavant, K. (1995). Student Evaluations of Teaching: A Tool for Directing and Measuring Course Improvement Efforts. NACTA Journal 39(1): 37-38.
- Zimmerman, A. & Mokma, A. (2004). Developing a Student Evaluation of Advising Survey Instrument. *NACTA Journal 48*(3): 2-6.

CHAPTER V

WHAT GRADUATING SENIORS SAY ABOUT THEIR COLLEGE EXPERIENCE: A CASESTUDY OF THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES AT MICHIGAN STATE UNIVERSITY

Introduction

The gathering of students' feedback for the purpose of improving curricula, instruction, and overall support services has become an established norm in higher education. Assessment of students' learning outcomes serves the dual purpose of demonstrating accountability for the external constituency and improving academic program for internal constituency (Delaney, 2001). Some researchers assert that "student voice" is the most important voice in assessment in higher education because student is the ultimate beneficiary of assessment; thus, it is appropriate to ask what they think about the educational program (Delaney, 2001; Lingrell, 1992). Twombly (1992) notes that students are in the best position to describe their academic experience because they have personal experience of the curriculum designed and implemented by institutions. Pace (1985) believes that college students express their opinions and satisfactions forthrightly, and their judgments of what they have gained are consistent with external evidence.

Student assessment employs a range of methods—freshman survey, senior exit survey, and alumni survey—depending upon the purpose of study. Feedback from seniors is preferred over alumni survey for the purpose of overall assessment of college and to address the immediate needs of the undergraduates (Corts et al., 2000; Donald and Denison, 1996). Lingrell (1992) claims that senior survey is an ideal vehicle for focusing on students' voice. Senior survey provides two major areas of assessment: student

satisfaction and student perceptions of what they have learned and gained through their college experience. Lingrell further stresses the importance of senior survey as:

... measurement during the senior year provides important information about previous years in college, as well as about student perceptions about his/her preparation for life after college Without the use of a senior survey, universities miss the chance to gain valuable information about its students. Implementation of a senior survey program would give faculty and administrators access to information that is essential in the evaluation of academic programs and student services (p. 18).

The College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU) has been committed to quality education. The teaching mission of undergraduate program in the CANR is guided by the philosophy of liberal education learning adopted by MSU which includes integrated judgment, advanced communication skills, cultural competence, analytical thinking, literacy in science and mathematics, and effective citizenship (Michigan State University, 2008).

One of the goals of higher education is to prepare students for productive careers. Today's fast paced, ever changing, highly competitive, and knowledge-based global economy has demanded that agriculture students develop a high level of technical competencies and a wide range of skills necessary to meet new workplace demands. The review of literature indicates that college graduates should possess a wide range of skills set, in addition to mastery of knowledge and competencies in the subject matter, to be competitive for professional jobs. A literature review on the important employable skills to be possessed by the agriculture college graduates from the perspectives of agribusiness employers and alumni is summarized in the Appendix V, and Appendix W.

Wilson et al. (2004) suggest that educational institutions should assess their academic programs to determine whether the courses being offered are adequately

preparing students to be able to perform desired program outcomes. Gilmore et al. (2006) argue that colleges of agriculture must update course curricula to meet the everchanging expectations of potential employers. Andelt et al. (1997) recommend that colleges of agriculture be sensitive to the needs of the employers and conduct studies on students' and employers' perceptions about skills preparation every three to five years.

The general purpose of this study is to document the college experience of the seniors in the CANR at MSU. This study is an attempt to understand perceptions of the graduating seniors about college/departmental services and development of employable skills through their undergraduate studies in the CANR. The study results may be used to revise existing course curricula and to improve the undergraduate academic program overall in the CANR at MSU.

Objectives

- To describe graduating seniors' perceptions of the services and assistance provided by the College of Agriculture and Natural Resources at Michigan State University and to make suggestions for improvement.
- To assess experiences of graduating seniors about the services and assistance provided by the academic departments/schools and to solicit suggestions for improvement.
- 3. To identify the employable skills that students developed during their undergraduate studies.
- 4. To solicit suggestions from students to make overall academic improvement.

Methodology

This study employed two methods: i) an online survey and ii) a focus group to collect data.

i. Online survey

An online survey of the graduating seniors in the CANR was conducted in each semester from spring 2004 to spring 2008. The survey instrument was jointly developed by professor in the Department of Community, Agriculture, Recreation, and Resource Studies (CARRS), and the Associate Dean of Undergraduate Programs in the CANR at MSU. The instrument was developed in consultation with the CANR assessment committee members, undergraduate advisors, and coordinators to ensure face and content validity.

The survey instrument had four parts (Appendix B). Part A sought students' academic information. Part B assessed college and departmental services, academic preparation, and skills development. Part C sought students' demographic information. Part D consisted of three open-ended questions about the strengths and weaknesses of the undergraduate program as well as a request for recommendations to enhance programs. The reliability of each scale was established using Chronbach's alpha procedure.

The electronic mail addresses of the graduating seniors were obtained from the Office of the Dean in the CANR. Online web-based surveys were created and administered by the Center for Evaluative Studies in the Department of Community, Agriculture, Recreation, and Resource Studies (CARRS) at MSU. Online surveys were electronically sent to each graduating senior via a personalized "cover letter" that included the web-address or hyperlink of the survey. Students were asked to "click" on

the hyperlink in the e-mail text to access the web-based survey. Once the student completed the survey and hit the "submit" button, his/her data were automatically collected in web-based database. The survey was administered during fall and spring semesters (i.e. twice a year) when senior students apply for graduation. The online survey was sent a month prior to the graduation date and remained open a month after graduation.

The response rates for the graduating senior survey varied from 22.6% to 44.4%. Response rates were 44.4%, 31.3%, 23.9%, 22.6%, and 41.0% for each academic year from 2003-04, 2004-05, 2005-06, 2006-07, and 2007-08, respectively. The overall response rate for the graduating senior survey for five-year study was 32.6%.

To increase the survey response rate, participants were provided a free two-scoop ice-cream coupon, as a token of appreciation, who completed the survey. Participants were informed to pick up a coupon from the MSU Dairy store located in Anthony Hall. Additionally, survey reminders were sent after one week and again a week before the icecream event to enhance the survey response rate.

The data analysis was done using the Statistical Package for Social Science (SPSS 15) for Windows. Data were analyzed using descriptive statistics (frequency, mean and standard deviation).

ii. Focus group interview

The focus group interviews are conducted for variety of purposes. The primary purpose of the focus group interview in this study was the need for fathering in depth information on the perspectives of graduating seniors about their academic experiences in the CANR. Various authors (Alreck and Settle, 2004; Larson et al., 2004; Krueger and
Casey, 2000) suggest that a focus group be conducted with a clear plan in a carefully designed and controlled process and environment. In this study, focus group was conducted by adopting the following procedures:

i) Reservation of focus group venue and identification of participants

An easily accessible focus group venue for all participants was identified and reserved. Participants were identified by contacting the undergraduate advisors and coordinators in each academic department and unit within CANR. To expedite the process of participant selection, the Associate Dean and Coordinator of the Undergraduate Program in the Office of the Dean in the CANR at MSU sent an e-mail to all advisors and coordinators of all academic departments and units to identify potential focus group participants and to pass the names of selected students and their e-mail addresses to the researcher. Upon receiving the list of potential participants, the researcher sent e-mail letters (Appendix C for sample invitation letter) inviting them to participate in focus group interviews. The e-mail letter contained the purpose of the focus group interviews; the location, time, and anticipated length of interview; and the provision of incentives to each focus group participant. A final reminder e-mail, followed by a personal call when appropriate, was sent to each selected student about the focus group interview topic, venue, and time one day prior to the event. Three focus groups were conducted with a total of 23 participants of both genders and students of color.

ii) Development of interview protocol (discussion guide)

Asking appropriate questions is crucial in focus group interviews. Alreck and Settle (2004) suggest that focus group interview questions should be framed in such a way that

participants cannot answer with a single word or phrase. Rather, the moderator should ask "trigger" questions designed to stimulate a conversation and seek a variety of opinions. Likewise, Krueger and Casey (2000) suggest using open-ended questions, which encourage long explanations and avoiding dichotomous questions that can be answered with a "yes" or "no". Krueger and Casey (2000) further suggest using different types of questions to get participants involved. The questions in this proposed focus group interview were intended to explore the perspectives of graduating seniors on topics specific to college services, departmental services, academic advising, and skills development. The focus group questions are mentioned in the focus group script in Appendix D.

A focus group discussion guide (interview protocol) was developed to help the moderator lead the discussions. A short and clear script helped the moderator keep discussions on track and finish the interviews within the stipulated time. The script for conducting focus groups for this study is attached in Appendix D.

Conducting a focus group interview in a limited amount of time with a first time audience was a challenging job. Running the focus group sessions successfully and systematically with a "focus" on the subject matter required some ground rules, which helped the moderator guide the discussions in a smooth and timely manner. Ground rules also helped moderator control the environment and kept the discussion on track. The following basic ground rules were followed in the focus group interview:

- We used first names in the sessions
- There was no right or wrong answer
- One person spoke at a time

• Participants were encouraged to feel free to comment on other people's opinions but they were also advised to listen and respect other people's ideas and opinions

• Cell phones were turned off during the sessions

iii) Incentives for participation

Each focus group participant received \$20.00 in cash as an incentive. Unlike responding to a survey questionnaire, focus group participants should expend substantial amount of time and effort. They may incur additional travel costs, and their time is valuable. Thus, providing incentives to compensate focus group participants' travel expenses and time is an established norm.

Focus group interviews demand several logistical managements, such as a meeting room equipped with necessary audio and visual aids, adequate lighting and work space, a comfortable room temperature and arrangement of tables and chairs, necessary office supplies, such as stationary (writing pad, pencils, name cards), and refreshments, etc.. Since interview sessions lasted for an hour to two hours, participants were provided with drinks and pizza at the beginning to energize them for the sessions.

iv) Moderating the focus group interview

The researcher moderated the focus group interview sessions by following the discussion guide. One assistant moderator helped the principal moderator by taking notes. The moderator welcomed the participants and started the focus group interviews with a smooth and snappy introduction, and the rest of the discussions were conducted as stated in the focus group script. All three focus group discussions were audio-taped to transcribe and analyze the data later.

v) Analysis of focus group data

The data were analyzed by following the qualitative approach as detailed by Krueger and Casey (2000). Analysis of the data started with a review of focus group notes taken by the assistant moderator. A debriefing session with an assistant moderator was scheduled immediately after the focus group interview. Audio tapes were transcribed verbatim into Microsoft Word documents for further analysis. Audio tapes were replayed and transcribed word documents were checked simultaneously to confirm that no important information was missing. Each participant was assigned unique identification number (ID) and pseudonyms to protect the student's identity. Researcher carefully read the transcribed word documents and highlighted the key themes and concepts identified using different colored markers. Identified themes and concepts were coded in Excel, which helped the researcher to sort by focus groups, by major of participants, and by themes so that comparisons across the groups were easier. The final results of analysis were prepared in frequency tables and then described and interpreted according to the research objectives. Findings were presented in the participant's own words to the extent possible. Selected quotations were used to illustrate the key points as appropriate. Some quotations were slightly edited for distracting and repeated phrases such as "hmmm...", "you know", "I mean", etc..

Results and Discussions

This section presents the aggregate findings of the five-year online survey (spring 2004 to spring 2008) and three focus group interviews of the graduating seniors in the CANR at MSU. The findings from online survey are presented in the first part and the findings of focus groups are presented in the second part.

Online survey results

Characteristics of online survey participants

A total of 1,066 respondents participated in the five-year study from spring 2004 to spring 2008 (Appendix X). Of 1,066 respondents, 428 (40.2%) were males and 638 (59.8%) were females. Nine out of ten respondents were Caucasians. Participation of African Americans and Asian Americans was 3% and 2.7%, respectively. Hispanic students' participation ranked the fourth (1%). Participants' residence and residential status were recorded from Academic Year 2006-07, and that analysis revealed that little more than one-third (37.2%) of the respondents had grown up in rural communities and more than half (52.9%) had been raised in suburban communities. One out of ten (9.9%) respondents had urban backgrounds. With regard to residential status, nine out of ten (91.8%) were residents of the state of Michigan. Out-of-state and international students accounted for 6.8% and 1.4%, respectively. The average age of respondents was 23 years, with a range from 20 to 55 years.

Survey respondents participated from all 23 academic majors in the CANR (Appendix Y). However, respondents from Packaging accounted for 18% of the total respondents, followed by respondents from Animal Science (13.5%) and Dietetics (7.6%).

Perceptions of services or assistance provided by the CANR Dean's Office

Respondents were asked to assess their perceptions of services or assistance provided by the College, i.e. CANR Dean's Office (Table 21). Respondents were asked to indicate their agreement or disagreement in a five-point Likert scale (1=Strongly Disagree to 5=Strongly Agree). The overall reliability (Chronbach's Alpha) of the scales was 0.68.

The findings showed that respondents agreed that staff provided timely information on academic matters, which students found helpful in making informed decision about their major. Similarly, respondents agreed that the career advising and information provided by the College was useful. Respondents also agreed that the College sponsored a quality study abroad program. Overall, respondents agreed that the services or assistance provided by the College was useful.

			Academic	Year		
Statements	AY 2003-04 (Spring 04 only) N=140	AY 2004-05 (Fall 04-Spring 05) N=174	AY 2005-06 (Fall 05-Spring 06) N=183	AY 2006-07 (Fall 06-Spring 07) N=169	AY 2007-08 (Fall 07-Spring 08) N=332	Total N=998
	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)
The staff provided timely information on academic matters that was helpful in making an informed decision about my major.	3.8 (0.9)	3.8 (0.8)	3.8 (0.8)	3.7 (1.0)	3.7 (0.9)	3.8 (0.9)
The career advising and information provided by the College was useful.	3.7 (1.0)	3.8 (0.9)	3.7 (0.9)	3.7 (1.1)	3.7 (1.0)	3.7 (1.0)
The College sponsored quality study abroad experiences for students.	3.9 (1.0)	3.9 (1.0)	4.1 (0.9)	3.8 (1.0)	3.8 (1.0)	3.9 (1.0)

ervices
College s
Perceptions of
Table 21.

* Mean is computed based on 1=Strongly Disagree, 2=Disagree, 3=Neither Disagree Nor Agree, 4=Agree, and 5=Strongly Agree

Perceptions of departmental services

Academic departments/schools implement most of the academic programs of the CANR. Students interact primarily with the faculty members, advisors, department chairs, and secretaries. Thus, respondents were asked to indicate their perceptions about the departmental services offered to them. Fifteen questions were asked covering different aspects of departmental services, such as access to faculty members and academic advisors, academic and career advising, study abroad, internships, opportunities to become involved in professional organizations, and timely communication. Statements were measured in a five-point Likert type scale of 1 = Strongly Disagree to 5 = Strongly Agree. The post hoc reliability (Chronbach's Alpha) was 0.88.

Findings about respondents' perceptions of departmental services indicated that faculty members and major academic advisors were easily accessible (Table 22). Respondents agreed that it was easy to get to know a faculty member, and they also had no difficulty in identifying departmental or major advisors. Despite the easy-to-know faculty members and the accessibility of faculty advisors, respondents indicated that departmental faculty members were relatively less available to discuss undergraduate research and extension opportunities.

Departmental services with regard to academic and career advising indicated that students got support from their major advisor to decide courses to take. However, respondents showed less agreement regarding their major advisor's or Career Field Consultant's assistance in preparing resumes and providing tips on interviewing skills. The respondents showed the least agreement regarding their major advisor's or Career

Field Consultant's assistance in finding the student's first professional job after graduation.

			Academic	: Year		
Statements	AY 2003-04 (Spring 04 only) N=146	AY 2004-05 (Fall 04-Spring 05) N=177	AY 2005-06 (Fall 05-Spring 06) N=183	AY 2006-07 (Fall 06-Spring 07) N=171	AY 2007-08 (Fall 07-Spring 08) N=132	Total N=1009
	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)
In my major department, it was easy to get to know at least one faculty member well enough so that I could ask for such things as letters of recommendation.	4.3 (1.0)	4.4 (1.0)	4.5 (0.8)	4.2 (1.0)	4.2 (0.9)	4.3 (0.9)
I had no difficulty in identifying my departmental/major advisor.	4.3 (.9)	4.5 (0.8)	4.4 (0.9)	4.2 (1.1)	4.2 (0.9)	4.3 (0.9)
My major advisor was easily accessible.	4.2 (1.1)	4.4 (0.8)	4.1 (1.1)	4.1 (1.1)	4.1 (1.0)	4.2 (1.0)
In my major, departmental faculty were accessible to discuss undergraduate research or extension opportunities.	(6) 6.6	3.8 (1.0)	3.8 (0.9)	3.7 (1.1)	3.8 (0.9)	3.8 (1.0)
My major advisor helped me decide the courses to pursue.	3.9 (1.1)	4.2 (1.0)	4.0 (1.1)	4.5 (0.9)	3.9 (1.1)	4.1 (1.1)
My major advisor/Career Field Consultant offered suggestions to prepare my resume.	3.5 (1.0)	3.6 (1.1)	3.6 (1.1)	4.1 (1.0)	3.5 (1.2)	3.6 (1.1)
My major advisor/Career Field Consultant gave tips on interviewing skills.	3.4 (1.1)	3.4 (1.0)	3.3 (1.2)	4.0 (1.0)	3.3 (1.2)	3.5 (1.1)
My major advisor/Career Field Consultant helped me find my first professional job after graduation.	2.9 (1.2)	2.7 (1.0)	2.8 (1.2)	3.7 (1.0)	2.7 (1.1)	2.9 (1.2)
* Mean is computed based on 1=	Strongly Disagi	ee, 2=Disagree, 3	=Neither Disagree	Nor Agree, 4=Agre	se, and 5=Strongly	Agree

Table 22. Perceptions of departmental services

Respondents agreed that departmental staff provided timely information on academic matters that helped students make an informed decision about their major (Table 23). Respondents consistently agreed throughout the study (2004-2008) that in their major courses, faculty expectations for their performance were clearly defined at the beginning of the course and sufficient opportunities to become involved in student organizations relevant to their career/professional interests were presented.

Although the respondents were very close in agreeing that the department encouraged them to participate in study abroad programs, it is interesting to note that such encouragement has been decreasing each academic year from spring 2004 to spring 2008. Respondents agreed that their major department encouraged them to participate in internships, and provided information on internship opportunities. However, respondents were neutral, neither disagreeing nor agreeing on departmental encouragement to participate in volunteer programs or unpaid internships.

In summary, overall findings indicated that respondents did agree on such departmental services as access to faculty members and academic advisors, academic advising, internships, and study abroad.

			Academic	Year		
Statements	AY 2003-04 (Spring 04 only) N=146	AY 2004-05 (Fall 04-Spring 05) N=177	AY 2005-06 (Fall 05-Spring 06) N=183	AY 2006-07 (Fall 06-Spring 07) N=171	AY 2007-08 (Fall 07-Spring 08) N=332	Total N=1009
	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)
Departmental staff provided timely information on academic matters that was helpful in making an informed decision about my major.	4.0 (1.1)	4.2 (0.9)	4.2 (0.9)	3.9 (0.9)	4.0 (0.8)	4.1 (0.9)
In my major courses, faculty expectations for my performance were clearly defined at the beginning of the course.	4.2 (0.9)	4.2 (0.8)	4.3 (0.7)	4.1 (0.9)	4.0 (0.9)	4.1 (0.8)
Sufficient opportunities existed to become involved in student organizations relevant to my career/professional interests.	4.2 (0.9)	4.1 (0.9)	4.2 (0.9)	4.1 (1.0)	4.0 (0.9)	4.1 (0.9)
My major/department encouraged me to participate in study abroad.	4.0 (0.9)	3.9 (1.0)	3.9 (1.0)	3.8 (1.1)	3.7 (1.0)	3.8 (1.0)
My major/department encouraged me to participate in internships.	4.3 (1.0)	4.3 (1.0)	4.3 (1.0)	4.1 (1.1)	4.2 (0.9)	4.2 (1.0)
I had no difficulty in obtaining information on internship opportunities.	4.0 (1.1)	4.0 (1.0)	4.0 (1.1)	3.8 (1.2)	3.9 (1.0)	3.9 (1.1)
My major/department encouraged me to participate in volunteer programs or unpaid internships.	3.5 (0.9)	3.3 (1.0)	3.3 (1.0)	3.4 (1.1)	3.4 (1.1)	3.4 (1.0)
* Mean is commuted based on 1=Str	ronaly Disgare	2=Disantee 3=	Neither Dicagree	Nor A area 4= A m	and S=Strong	IV Acree

Table 23. Perceptions of departmental services (continued)

L. ŝ ugu 2

Contribution of academic major to development of skills

One of the goals of higher education is to develop a wide ranging skill set so that college graduates who seek employment are competitive on the job market. Accordingly, the third objective of this study was to identify employable skills developed during undergraduate studies in the CANR at MSU. Ten different skills were listed on survey questionnaire and respondents were asked to indicate the degree to which their academic major contributed to the development of those skills on a five-point scale: 1 = 'made no contribution', 2 = 'made a moderate contribution', 3 = 'made some contribution', 4 = 'made a considerable contribution', and 5 = 'contributed a great deal'.

Results showed that respondents indicated consistently that their academic major made a considerable contribution to their developing the skills and acquiring the knowledge required by their anticipated career path (Table 24). Academic majors contributed most strongly in building critical thinking and problem solving skills, verbal communication skills, and teamwork skills. Academic majors contributed only moderately in developing diversity skills, and computer technology and database research skills. The development of skills relevant to working with people from diverse backgrounds (managing diversity) had the lowest mean (mean=3.3) among the skills. The computer technology and database research skills had the second lowest mean (mean=3.5) followed by research skills (mean=3.7), and leadership and interpersonal skills (mean=3.7).

In summary, the undergraduate studies in the CANR have made a considerable contribution in building the majority of the skills required in college graduates' anticipated career path.

Table 24. Development of employable skills

			Academic	: Year		
	AY 2003-04	AY 2004-05	AY 2005-06	AY 2006-07	AY 2007-08	E
Skills	(Spring 04 only)	(Fall 04-Spring 05)	(Fall 05-Spring 06)	(Fall 06-Spring 07)	(Fall 07-Spring 08)	I otal N=1005
	Mean* (SD)	(SD) Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)	Mean* (SD)
Knowledge applicable to your anticipated career path.	4.0 (1.0)	4.0 (0.9)	4.0 (0.9)	4.0 (1.0)	4.0 (0.8)	4.0 (0.9)
Skills required in your anticipated career.	3.9 (1.0)	3.9 (1.0)	3.9 (0.9)	4.0 (0.9)	3.9 (0.9)	3.9 (0.9)
Critical thinking and problem solving skills.	3.9 (1.0)	4.0 (0.9)	4.0 (0.9)	3.9 (0.9)	3.8 (0.9)	3.9 (0.9)
Written communication skills (i.e., papers, reports, news articles, etc.).	3.8 (1.0)	3.9 (1.1)	3.8 (1.0)	3.8 (1.0)	3.7 (1.0)	3.8 (1.0)
Verbal communication skills (i.e., class presentation, group discussions, etc.).	3.8 (1.0)	3.9 (1.0)	3.9 (1.0)	3.9 (1.0)	3.8 (0.9)	3.9 (1.0)
Teamwork skills.	3.9 (1.0)	4.0 (1.0)	4.0 (1.0)	4.0 (1.0)	3.9 (0.9)	4.0 (1.0)
Research skills.	3.5 (1.1)	3.7 (1.1)	3.7 (1.0)	3.8 (1.1)	3.7 (1.0)	3.7 (1.1)
Computer technology and database research skills.	3.6 (1.1)	3.5 (1.2)	3.5 (1.1)	3.6 (1.0)	3.5 (1.0)	3.5 (1.1)
Diversity (i.e., working with others from diverse backgrounds).	3.3 (1.2)	3.4 (1.2)	3.1 (1.2)	3.3 (1.2)	3.3 (1.1)	3.3 (1.2)
Leadership and interpersonal skills (i.e., club management, understanding others, conflict management).	3.6 (1.1)	3.9 (1.1)	3.6 (1.1)	3.7 (1.0)	3.6 (1.0)	3.7 (1.1)
* Marco is second bear of an 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	C					

Mean is computed based on 1=Made no contribution, 2=Made some contribution, 3=Made a moderate contribution, 4=Made a considerable contribution, and 5=Contributed a great deal

However, the undergraduate programs/majors have not been very effective in developing skills related to managing diversity, computer and database, research, and leadership and interpersonal skills.

Focus group interview results

The findings from focus group interviews were organized into four categories: description of focus group participants; participants' experiences with services or assistance provided by the CANR Dean's Office and suggestions to improve services; participants' assessment of academic support and services provided by the academic departments/schools and suggestions to improve; and participants' experiences with contribution of the CANR program to the development of employable skills and suggestions to enhance them.

Characteristics of focus group participants

All together, 23 senior undergraduates in the CANR at MSU participated in three focus group sessions. Of them, female and male were 10 (43.5%) and 13 (56.5%) respectively. Only one of the participants was African-American and the rest were Caucasian. Most of the participants were in-state students, from the state of Michigan. Focus group participants represented eleven academic departments/schools and thirteen majors within the CANR. The academic majors and representative number of participants were: Agri. Science (2); Agriculture and Natural Resource (ANR) Communication (3); Crop and Soil Science (1); Entomology (3); Fisheries and Wildlife (2); Food Industry Management (1); Food Science (2); Forestry (2); Horticulture (2); Packaging (1); Park, Recreation and Tourism Resources (2); Plant Pathology (1); and Landscape Architecture (1). Among the participants, eleven were transfer students either within the college/university at MSU or from other colleges/universities outside the MSU.

Perceptions of services or assistance provided by the CANR Dean's Office

Focus group participants were encouraged to share their experiences with the services and assistance provided by the Dean's Office in the CANR at MSU. Out of 23, fifteen participants (67%) reported that they received some kind of services from the Dean's Office. Services included study abroad, career advising, scholarships, undergraduate research grants and paper work assistance for changing and/or declaring academic major. Of those who received the services, ten participants indicated that they visited the Dean's Office to complete some kind of paper work related to declaring or changing their major, to drop classes, to turn in under graduate research applications, and to acquire a study abroad application. Similarly, six participants visited the Dean's Office to seek information about study abroad, career advising, and scholarship opportunities. Out of 23, eight participants (3 female, 5 male) indicated that they did not visit the Dean's Office, thus, they did not receive any services.

The majority (67%) of participants who received services or assistance from the Dean's Office claimed that their experience overall was positive. The participants who received services from the Dean's Office commented that the staff was knowledgeable, very helpful, service-oriented, and communicated well. A participant who visited the Dean's Office to seek information on study abroad program claimed: "everyone was really informative. I just wish I would have had more interactions going to the building" (Victoria).

Another participant had a meeting with the Career Advisor. He stated that the "career advisor was very helpful and meeting was very nice" (Rick).

Similarly, another participant had to get some paperwork done to drop one course after the deadline. He talked to the Dean and he described his experience about the service he received as:

The Dean was more than understanding about it and was able to withdraw me from the class without having to take a zero instead of withdrawal. I felt that the people there were very service-oriented (Edward).

Finally, another participant received an alumni research grant. He described his positive experience regarding the communication he had with the staff in the Dean's Office as: "I had wonderful communication. A constant communication about where they were at in the process" (Mathew).

Not all participants who received services from the Dean's Office were equally happy or had such positive experiences. A few participants were not pleased with the services they received from the Dean's Office. The primary reason for not being satisfied was poor communication between the Dean's Office and participants. For instance, one participant received a undergraduate research grant. She mentioned that she had to send several e-mails to the Dean's Office to know the status of her application. She said, "I had to keep shooting e-mails. As a coordinator, he needs to stay on top of things" (Emily).

Similarly, another participant who applied for a undergraduate research grant also claimed that she was not happy with her communication with the Dean's Office because she did not receive any information about the status of her application. She expressed her dissatisfaction as: "I never heard anything back so that made me a little upset" (Lexi).

Eight out of 23 participants did indicate that they did not receive any services or assistance from the Dean's Office, thus, they did not have any experience. The majority of them were transfer students from other departments. Some of the participants who did not receive any services indicated that they were not aware of services provisions, thus, they never visited the Dean's Office. A participant in the focus shared: "really, I've never known what it [Dean's Office] has to offer me so I've never gone" (Kim).

It is interesting to note that one participant who used to work in Agriculture Hall and had her classes there mentioned that she has been to the Dean's Office several times to drop off paper work, but she did not know what she could receive from the office. In her own words, she mentioned, "I did not know I can go there to pick up information about study abroad scholarship or anything like that. I wasn't clear about that" (Angela).

In summary, there were primarily two reasons for students not taking the advantage of the services provided by the Dean's Office. First, some participants were not aware of the services provided by the Dean's Office. Second, some participants stated that they got adequate information and support services from their professors or the major departments, thus, they did not have any need to visit to the Dean's Office.

Suggestions to improve services provided by the CANR Dean's Office

Focus group participants were asked to offer their suggestions to improve services and assistance provided by the Dean's Office so that CANR students can be better served in the future. Out of 23, six participants did not offer any suggestions. The primary reason for not offering any suggestions were either that the participants were satisfied with the services provided by the Dean's Office and they had no recommendation or that

the participants were not aware of the types of services offered so they did not have any suggestions to offer.

Seventeen participants offered a wide range of suggestions with some examples. The main themes that emerged included: i) more communication between the Dean's Office and students, ii) better method of information dissemination, iii) more efforts by departments/schools to facilitate services provided by the Dean's Office, and iv) better policy with regard to study abroad, especially for single parents.

i) More communication between the Dean's Office and students

Fourteen out of the seventeen participants who offered suggestions, emphasized the need for better communication between the Dean's Office and students. Several of them would have liked to receive information or services through their respective academic department/school and advisor. Since many students were either working closely with or in contact with advisor(s) in their department/school, participants did feel that getting information or services through department/school and advisor would be more effective and efficient. Participants suggested that the Dean's Office should involve more academic department/schools and under graduate advisors and work through them to provide services to students.

The following statements from participants indicate that they would like to receive more information or services through their respective academic department/school and advisor.

For me, I always just talk to my academic advisor (Allen).

I would go to my advisor for everything and did not know there was another resource there (Kim).

I would go to the Department Office far ahead of going to the Dean's Office (Ana).

ii) Better method of information dissemination

Some participants indicated that the Dean's Office should identify and adopt innovative ways of disseminating information about its programs and services such as sharing program information with new students during the academic orientation program (AOP), distributing pamphlets or providing some additional information when students visit the Dean's Office, and putting information on the college website, etc.. During the focus group discussions, several participants indicated that they did not approach the Dean's Office for services because they were simply not aware of the support services it offers. Therefore, participants suggested that the Dean's Office utilize every opportunity to disseminate information to assist its students. Again, a few quotations from participants suggest how students think the Dean's Office might improve its services:

I think four years ago getting started I should have known the services I could have gotten there, but I've never known. So maybe at AOP they could say, Oh, if you need anything or this is what you can get from the Dean's Office, go here for information for this or that. That should be made clear (Angela).

I guess something they can do would be, like me when you switch your major, they could give you a sheet of paper or tell me about it and talk to you, say, "You know, by the way, this is something you could do in our college" (Bob).

One participant suggested that his colleagues join a web-based social networking site such as Facebook or something similar. He also suggested that the CANR should prepare a list of services it offers and put it in the web-based social networking site so that the current students or potential students will know about the opportunities and services they can obtain from the Dean's Office.

iii) Departments/schools should facilitate services provided by the Dean's Office

A few participants indicated that the Dean's Office should decentralize its services to departments/schools and they should promote the Dean's Office. In this regard, one participant noted:

Since a lot of us go there [Dean's Office] for one thing, maybe decentralize it a bit. In fact, a lot of our priorities like study abroad trip or scholarships, maybe that could be more maintained by our own department rather than having to go to Ag. Hall all the times (Joe).

Joe also added, to reinforce his idea of decentralization of services to departments/schools, that most of the students live around Wilson Road and South side of campus. It is, therefore, difficult or inconvenient for students to walk up into the middle of campus to visit the Dean's Office. He mentioned that most of the seniors drive, however, driving is equally difficult given the lack of parking close to the Dean's Office. Victoria had a little different view, but she supported the idea of involving academic departments or schools to serve students better. She recommended that the School of Packaging promote the Dean's Office since she did not hear about it from her own school. She had only heard about the Dean's Office from the Office of Study Abroad. Mathew had a similar idea that department should strongly encourage its students to enroll in study abroad.

iv) Develop a policy to encourage nontraditional students in study abroad program

One of the focus group participants who identified himself as a "returning, nontraditional student with a lots of real-life experience" expressed his intention to apply for a study abroad. However, his participation is hampered because he is a single parent with a thirteen-year old son with him. Despite his keen interest to join a study abroad, he could not do it since he was not sure whether he can take his son in study abroad with him. During the focus group interview he proposed that the CANR should have some kind of policy provision that allows non-traditional students, especially single parents, take their children at their own costs if they wish to do so. During the focus group discussion, he stated:

I have a son, so sometimes it's hard to do some things, and you just can't dump him off for thirteen weeks at the pool hall. But, one suggestion I would say is that it's nice to have a thirteen year old son and he's my responsibility and everything else like that, and I would like to see a study abroad program somehow designed to say, hey, if somebody does have one or two child/children, how can we get the children over there as well? Let somebody go over and do a study abroad program, and at the same time somehow have it set up, get some professors maybe have kids and have something that the kids would do (Mac).

Study shows that family responsibilities, balancing school and work, and home responsibilities are some of the major challenges for the nontraditional students that prevent them from going to study abroad (Koh, 2008). Various organizations and scholars articulated the need for study abroad experience for nontraditional students to enhance the diversity of U.S. study abroad programs (Institute of International Education, 2007; NAFSA, 2003). Thus, there is a need for policy development to encourage the participation of nontraditional students who constitute a significant proportion of U.S. undergraduate population.

Perceptions of departmental services

Focus group participants were asked to share their experience about academic support and services available to students in their respective academic departments/schools. Five themes of support and services emerged from three focus group discussions which are presented in Table 25. A brief description and discussion of each of the support services including participants' comments are presented below.

Support and services	Frequency	Examples
Academic advising	23	academic planning, override and course enrollment, credit transfer, prepare for graduate school, etc
Internships and career services	14	inform students about internship opportunities, help prepare resume, interview skills, and find job, volunteering opportunities, invite outside speakers, professional organizations/industries, interaction with graduate students, and alumni, etc
Research opportunities	9	opportunities to work in research projects with professors in labs or in fields and receive research grants from the college
Study abroad programs	6	visiting foreign country(s) for academic training.

Table 25. Support and services available in academic departments/schools

Academic advising

Table 25 shows that academic advising was the most frequently reported service accessed by the participants in their respective academic departments/schools. Academic advising refers to those activities and services provided by the academic advisor or professional advisor to student such as academic planning (study plan), course selection, override for course enrollment, credit transfer, and preparation for graduate school. All 23 participants indicated that they received academic advising services. They also shared their experiences (both positive and negative) about the quality of academic advising. Seventeen out of 23 participants felt positively about the quality of academic service they received, indicating that they were satisfied with the academic advising. Six participants indicated that they were not satisfied with the academic advising service. Below is a brief discussion on how these two groups of participants—satisfied and dissatisfied-described their advisors and their experiences with academic advising

within CANR at MSU.

Participants who were satisfied with academic advising frequently mentioned that

their academic advisors were: friendly, always available and accessible, knowledgeable,

helpful, nice, good communicators, very open, and great. The following quotations

illustrate some of the participants' assessment about their advisors and the quality of

academic advising they received:

She is really friendly and she knows everybody by name. She is always available, and she knows exactly what classes you should take and can answer all your questions (Victoria).

My advisor is great. She will bend over backwards for anybody. If you want to take this class or you want to do this or that, she will find a way to get you credit and to make it what Parks and Recreation is about. She is fantastic (Kim).

Everyone in the department is available to you all the time. I mean our adviser, there's only one, he manages I think a little more than a hundred students and he knows us all by name. He even knew who I was dating at one point, and I did not even tell him. That was kind of creepy, but at the same time it tells us he knew you, yea, it's interesting. So...he is very very caring (Tanya).

Eleven participants were transfer students either within the college/university at

MSU or from outside MSU to the CANR. These transfer students reported that academic

advising in their current majors in the CANR is much better than in their previous majors.

One of the transfer students had changed her major eight times from such majors as

Chemical Engineering to Pre-Veterinary to Entomology. She said,

Finally, entomology was my savior. It's a small department, the academic advising has been the best of any of the other 8 majors I've had. There are two advisors, when I first came into the program they had little meet and greets. They've been great, very helpful and helped me plan my undergraduate and graduate program. It's kind of a positive because I had such a terrible experience at MSU before, and this college has been the best (Lexi).

Another participant who was transferred from the College of XXX at MSU to the CANR indicated that she was highly satisfied with the academic advising in her current major. She compared the academic advising between the two colleges and said that it was much better in the current major especially for those students who are out-of-state and plan to finish program in four years. She compared the differences between the two colleges in regards to her academic advising:

I think it's great [advising], especially coming from the XXX college. Over there a lot of advisers sugar-coat it, try to make you stay here a lot longer than what you need to, encourage you to like, "Oh, 12 credits is enough". I, myself, as a out-of-state student, I was on the four-year plan so that wouldn't really fit my four-year so they [current advisors] were just really open, ...it was one semester I took eighteen credits and it was advised but they did not like challenge me, and supported me throughout the semester so if you wanna take that jump... take as many classes as you want, ...they also support you and what they do. I like it, because it's like you get to set your own path but they do kind a guide you where they tell you what classes not to take in the same semester and things like that, so, I enjoy it a lot (Sophia).

Finally, another focus group participant who identified herself as a transfer

student from the University of XXX mentioned that she found a big difference between

these two universities in terms of academic advising. She explained the difference as:

He [advisor] helped me get a job with someone in the department; ...apply for grad school, ...with interviews, helped me with everything and then the professors are great. Every class is geared towards how you're gonna do your job in the future, ...get a job in the future, practical knowledge, and professors are always available for any sort of advice. ...I came here from University of XXX and I did not even have an adviser to my knowledge. I don't even know, and, yeah, it's terrible there (Tanya).

Six out of 23 focus group participants did not have a positive experience with the

academic advising services they received. All of them had some common complaints

when they described their experience with academic advising. Most frequently used the

word "frustration" when they talked about their academic advising experience. The main

causes of "frustration" were that advisors were not well-informed or knowledgeable about the course requirements for certain majors and the college website lacked accurate information. In addition, the information participants received from their advisors about course requirements often contradicted the information available on the college website. The participants who were not satisfied with the academic advising service characterized their advisors as: *unwelcoming*, *uninformed*, and *inattentive* to students. One of the

participants expressed his frustration, stating:

It [academic advising] is the only sour point in my undergraduate career. ... Going to our advisor is watching somebody talk to their daughter on AIM [webbased social networking site] and talking on their cell phone. I know it is hilarious, I am comedian, but...it is sad you know honestly it is really sad because she sits in her chair. She does not even acknowledge you when you walk in the room. Once in a while you get a "What's up?" But that's really, that's really *frustrating* [italics added] (Nelson).

The other participant described her "frustration":

I have had all the same *frustrations* [italics added]. Figuring out what class I need to take and should I trust her? Does she know? She's just crossing things out and saying, "You need to take this". I'm like, are you sure it does not say in the paper and it does not say in the website. And then she's always being 'Oh, you need to get this organized,' and that kind of make me feel kind of uneasy. And like, is this the major I should have chosen if things aren't figured out, things aren't organized (Angela)?

One more participant was "frustrated" because he had to schedule his classes for

the first time by himself and he did not get up-to-date information from website; neither

did he get reliable information from his advisor. He got the impression that his advisor

was not certain about the course requirements in his major. His story goes like this:

...One thing that was really *frustrating* [italics added] to me was that our website has not been updated for I don't know how long. It is not right. They've combined a lot of courses, they eliminated a lot of courses, and so when I had to schedule my classes for the first time by myself, I did not know what to do. I had a map of all the courses that I thought I should be taking and then looked them up, I could not find them. So when I met with my advisor she was crossing out stuff and actually the sheet of paper that she gave me wasn't even updated. So she was even crossing things out on that and that made me really nervous because I was like does she really know what she is talking about? And everything worked out okay, but my heart kind of sunk, because she's my advisor and I don't know whether or not to trust her because nothing updated and that was something a lot of people still talk about and still to this day (Joe).

Another participant was frustrated because he did not get an accurate information

from advisors nor did he get up-to-date information from the college website about

course requirements for his majors. He had three majors, thus, he had to work with three

advisors in different colleges. During the focus group discussion, he stated:

I have to deal with three college advisors and all three are on different pages. One says one thing and then other things say another thing and you never know if your class will line up. I am still trying to figure out how I will graduate this year. But with the ...department, our academic advisor is very unclear on all the different routes that we need to go to and then I have my other advisors that say one thing and add a class here and she does not count it and going back and forth it's just not communication. No one's on the same page. It's all gray lines, so you never know what classes you are going to take and what counts for what (Tom).

The findings of this study with regard to quality of advisors and academic advising are in agreement with the study findings of Radhakrishna and Thompson (1997). In their study, students identified that honesty, friendliness, caring and excellent communications were the most important qualities in a advisor-advisee relationship. Appleby (2001) notes that an effective advisor possesses accurate information, Communicate in a clear and unambiguous manner with advisees, provide a caring and personal relationship by exhibiting a positive attitude toward students, their goals, and their ability to learn, and help students explore career goals and choose programs, courses, and co-curricular activities that support these goals. Similar qualities were reported by the undergraduate students who were satisfied with academic advising at the University of Arkansas (Beasley-Fielstein, 1986). When compared to the findings of Suvedi and Heyboer (2004)

who studied opinions of the CANR alumni at MSU towards academic and career advising, respondents in this study rated the attributes of advisors higher than the respondents in the study of Suvedi and Heybor (2004). A recent study showed that 89.3 % of the undergraduate respondents indicated that they have used academic advising services at MSU (Hembroff, 2008).

A study on perspectives of faculty and administrators about undergraduate advising in land-grant colleges found that both faculty and advisors felt that knowing and working with degree/program requirements was the most important aspect of advising undergraduate students (Myers and Dyer, 2005). Knowledgeable advisors who can give accurate information to and care about students can develop a trusting relationships with their advisees, which has positive effect on students' development as a whole (Beasley-Fielstein, 1986). Some participants even suggested that advisors may need to go through refresher training, which is consistent with the recommendations of previous studies on academic advising (Horstmeier, 2006; Petress, 1996; Leonhardy and Jimmerson, 1992; Polson and Gordon, 1988; McAnulty et al., 1987). Since participants frequently mentioned that information provided on the college website is not accurate and up-todate, they recommended updating the college website with the latest information about course requirements.

Internships and Career Services

Internships provide students with an opportunity to apply classroom learning to real-world, field-based situations and to develop employable skills. Given the current ever-increasing unemployment rates in the U.S., internships are important for college students to build their resumes since it is work experience that will help them find job

after graduation. According to Michigan State University's 2008-2009 Recruiting Trends study, only those college graduates who are focused, directed, connected, and have completed multiple internships will get a job (Gardner, 2008).

Fourteen out of 23 focus group participants indicated that they were informed about various internship opportunities and the career services that are made available to them in the CANR. Participants mentioned that faculty members had good connections with industry, alumni networks, and professional organizations, thus, faculty had many insights about the types of careers available in different fields. Some faculty members invited industry staff to give class room presentations, and some industry staff also participated in career fairs, which provided the CANR students the opportunities to interact directly with industry people, to build relationships with them, and to explore internships services available in various industries and organizations. The following quotations from focus group participants indicate their assessment about opportunity of internships and career services in their respective departments/schools at MSU:

As far as career internships and full time positions go, our advisor for that also knows all of us by name, he teaches the class so we are really comfortable with him and we go asking questions. And he has worked in the packaging industry so he has lots of insights on types of career there are available and packaging. We have our own career fair every January and a tons of companies and every student has the opportunity to get an internship, so I am really pleased overall (Victoria).

I know a lot of people over there [Department of Horticulture] who've done internships, because you know you're required doing internship. If somebody doesn't get an internship over there it's nothing about the university, it's something about that person, and I'm being very honest with you because there is just lots and lots of opportunities. Horticulture club always has speakers coming in from different companies offering internships (Mac).

Career and internship stuff,luckily for us we have fantastic alumni networking system so usually she'll [Undergraduate Advisor] forward the message on. Again, faculty they help you out a lot with internships, study abroad and career building things. They know a lot of people from their personal experiences and alumni that have created their own firms and some along those lines and will pass that on (Nelson).

Doing the professional internship last year made me come back with even more desire and drive to get done because I could really see how I could apply and move in a direction that I want to be in (Edward).

Participants indicated that advisors and professors were very good in

communicating with them through e-mails about the available internships opportunities,

thus, students were relatively well informed about what areas of internships, locations,

and the application due dates. The following expressions indicate that there was no issue

of lack of communication between students and department:

Internships, I get hundreds of e-mails a day about internships and career opportunities so I have no complaints there. We are always informed, you just have to dig through them and find one (Aman).

I guess in regards to internships and stuff, those opportunities are readily available and they let you know where they are and when they are and when the applications are due. Also the big career fair I know, I don't know if our department is really involved with them intensively, but a lot of it's agriculture related and I found it really helpful. Career placement services have been a kind of iffy (Adam).

In summary, participants indicated that faculty and advisors were good at building relationships with relevant industries and bringing specialists into the classroom to make presentations, which provided additional opportunities for students to develop networking skills and professional relationships with potential employers. Participants mentioned that lots of internships were readily available and that they received adequate e-mail communications from their advisors. Students seemed pretty happy with communication and the internships opportunities available to them.

Research opportunity

Involving undergraduate students in research projects is an important aspect of developing students' critical thinking and analytical skills in college. Studies showed that undergraduate students who engaged in research activities with faculty members had a higher probability of persistence in college to pursue graduate education and to conduct research in the future (Russell et al., 2007). A recent study on the benefits of undergraduate research experiences indicated students increased their understanding of how to conduct research, built confidence about their research skills and increased their awareness about what graduate school is like (Hu et al., 2007). A significant increase in undergraduate research activities was observed in research universalities in U.S. after the publication of the Boyer Commission Report in 1998 (Hu et al., 2007; Katkin, 2003). The Boyer's Commission made two recommendations specific to research to improve undergraduate education: i) 'make research-based learning the standard' and ii) 'construct an inquiry-based freshman year' (Boyer Commission, 1998).

Nine participants indicated that they had research opportunities either in their own undergraduate research projects or in working with professors' research projects. Participants described their professors as very helpful in getting involved in research projects. Two participants described their research experiences as:

I'm really close to my teachers with the undergraduate research project; my one professor is my mentor also (Emily).

I just walked up to a professor I did not even know one day in my department and just said, "Can I do a research project with you? And he was like, 'yes'" (Tanya).

In contrast to other academic support services, participants who were involved in research activities did not elaborate on their experiences as they had for other activities

such as academic advising, internships, and career services. It may be possible that participants did not have as much research experience to share. The percentage of respondents who indicated having had research opportunities in the CANR is higher than the national average as reported by the findings from the 2007 College Senior Survey National Aggregate which indicates that 29% of the seniors claimed to have had an opportunity to work on a research project (Spinosa et al., 2008).

Study Abroad

According to the Open Doors report, Michigan State University has been the number one university among the public research universities in the U.S. to have the highest number of students to participate in study abroad for the last four years in the row (Michigan State University, 2008). Further, the CANR at MSU hosts the largest study abroad program amongst the colleges of agriculture in the United States (College of Agriculture and Natural Resources, 2008).

Six participants indicated that either they had participated themselves or had heard about study abroad programs in their departments. As reported by the participants, individual faculty members and the department strongly encouraged students to participate in study abroad programs often by providing scholarships. As one participant said, the department valued study abroad program so much that 23 out of 24 students in a class participated in study abroad program in Landscape Architecture major in the CANR. Not only did the college or university provide resources for study abroad program in the CANR, individual faculty members were also equally motivated to support study abroad program by writing grant proposals. One of the faculty members in the Department of Forestry got grants from the National Science Foundation and he was

able to take his students to study abroad in China. Participants who participated in the study abroad programs in the CANR characterized the programs as '*cool*', '*great*', and '*fantastic*' which indicated that they liked the program. One participant mentioned that it was a tailor-made program for her academic major. Students experiences about study abroad program are illustrated in the following quotations:

Landscape Architecture has a fantastic study abroad program. It's not mandatory but it's strongly encouraged. It's encouraged by the department, and the rest of the university is looking at it as a way to develop other study abroad programs. We are a five year program and we spend two semesters, our fourth year in Europe. It's a lot of hands-on, outdoor; it's schoolwork but it's a great experience. We have small classes, 24 in a class. Last year 23 of the 24 of us went and it was a fantastic experience (Mathew).

I went on study abroad to Madagascar, and my adviser did not really say anything about it but it was like tailor-made to my major and that was cool (Tanya).

There are few things like I know myself and a couple of other students have done a program through the National Science Foundation that has a liaison to the university from China, so we have gone to China for research opportunity with NSF, but that's not related to Ag. Hall or CANR or anything like that (Nelson).

One participant stated in the focus group discussion that the study abroad program should be geared towards her major. She indicated that students in Food Industry Management can learn a variety of things like food packaging in different countries, but she felt that the study abroad program has not been able to develop effective program within her major. Her concern is in agreement with the Institute of International Education, which recommends creating study abroad experiences with direct relevance to student majors for increasing participation (Institute of International Education, 2007).

Contributions of academic major to development of skills

Focus group participants were encouraged to share their experiences about the employable skills they developed through their academic majors. Six types of employable skills emerged from focus group discussions. The skills identified were: technical skills, interpersonal skills, research and analytical skills, communication and networking skills, business skills, and leadership skills. Table 26 presents the employability skills and gives examples for each skill, which is followed by some description and discussions.

Table 26. Skills developed by students in the CANR

Employability Skills	Frequency	Examples
Technical skills	17	Crop and soil management, wildlife management, disease and insects control, food products development, dairy technology, forestry, fruit and vegetable production and management, landscape management, community management, etc
Interpersonal skills	10	Diversity management, conflict resolution, risk management, time management, teamwork skills, etc
Research and analytical skills	9	Laboratory research, field research, grant writing, data analysis and report writing, computer skills (spreadsheet), etc
Communication and networking skills	9	Oral and written communication (presentations, writing, editing, etc.), developing relationships with diverse individuals, groups and organizations, etc
Business skills	5	Marketing, fund raising, etc
Leadership skills	4	Public speaking, group leaderships, etc

Technical skills

Technical skills include skills that an individual student has developed through his/her academic major or through expertise related to the student's specific major. Examples include: abilities to produce crops, controlling insects and pests, landscaping, and managing forests. Participants candidly mentioned that they developed technical skills in their primary major. Participants indicated that employment opportunities on campus, laboratory work, field exercises, internships, group projects, and involvement in professional students' clubs helped them develop technical skills. The following quotation illustrate one participant's competency and technical skills.

I've got a project right now where I'm managing 130 acres, reforesting it and everything. I had that job presented to me, and if I hadn't been learning the things I'm learning in my department, I might not have taken it or if I had taken it, I might have messed things up terribly. ...I will speak very highly of the skills that this university has given me (Mack).

Technical skills development does not necessarily always occur in classroom

teaching-learning activities. The extracurricular activities of such student academic clubs

as Forestry Club, Park and Recreation Club, Fisheries and Wildlife Club, and

Horticulture Club have played significant roles in developing students' technical skills.

The following is an example of how a student club helped a participant develop his skills:

I wanted to say about developing skill is the importance of the Forestry Club and student activities. A lot of that stuff may just seem like fun and games, but, say for example, right now the Forestry Club is making maple syrup. We've gone out, we've tapped the trees, we've collected the sap, we've got our own evaporator and we're making the syrup. ...Turns out, I'm really interested in making maple syrup. I would definitely look into that as a job (Rick).

The two illustrations above indicate that participants developed solid technical competencies in their respective primary field of study, which is one of the most important criteria used by employers in hiring college graduates for entry level positions (Cole and Thompson, 2002; Kretovics and McCambridge, 1998). According to a recent study conducted by CollegeGrad.com (2008), employers ranked the student's college major as the first criterion for hiring new college graduates. A high majority of potential
employers in the D.E. King Equine program at the University of Arkansas indicated that they would be more likely to hire college graduates with an equine science major than a non-major (Jogan and Herring, 2007). The technical competencies that the CANR students reported are in agreement with potential employers' criteria for hiring new entrants for agricultural jobs.

Interpersonal skills

The review of literature of the past 30 years of studies showed employers, faculty members, and alumni consider interpersonal skills is the most important employable skills (Garton and Robinson, 2006; Shah et al., 2004; Shivpuri and Kim, 2004; College of Agricultural Sciences, 2004; Wachenheim and Lesch, 2002; Graham, 2001; Kitto et al., 1996; Baker and MacLaughlin, 1995; Barkley, 1991; Litzenberg and Schneider, 1988). Less than half of the focus group participants indicated that they have developed interpersonal skills through their major academic program. Interpersonal skills included skills related to teamwork, diversity management, conflict resolution, risk management, and time management.

Participants who developed interpersonal skills indicated that they were involved in work employment, group projects working with communities developing management plans, student organizations like FFA, and personal projects. A participant who developed interpersonal skills through her work described the experience:

I think I've learned enough of the employability skills through different work experiences and I think just interacting with different people. I don't think I've learned skills from reading a book about anything. ...I think the skills for what I want to do are more personal skills that you pick up on when you interact with people and have to deal with people and just actually getting professional experience (Rita). Bill and Kim indicated during the focus group discussions that they developed various

interpersonal skills through working on group projects set in communities:

We go over the diversity management and conflict resolution, risk management, things like that. I think overall I feel pretty comfortable going into the adventure tourism industry and working (Bill).

We have projects to work on so we learn a lot about group work and working with other people. ...In just so happens that once we are in that state of doing the project, we usually don't have a clue what we're doing in the beginning and as a group we have to figure out what we're doing (Kim).

Mathew claimed that his major in Landscape Architecture (LA) at MSU is different from LA programs at other universities. At MSU he developed various interpersonal skills through group-based research module projects. The following statement illustrates how the program has prepared him to work in the real world:

Our major is so specific and it really is training you to get a job as an entry-level landscape architectures. ...Really, a different skill that MSU offers that other universities with the same program don't offer is a research module. ...Managing your time, management skills, people management skills, working in diverse groups. It's a really well-focused program in getting us to go out and work in the real world. It's very comprehensive (Mathew).

Despite the high level of interpersonal skills required by college graduates, less than half (10 out of 23) of the total focus group participants indicated their competencies in this skills set. It was interesting to note that seven out of ten participants who reported their interpersonal skills were females. Female participants who reported interpersonal competencies had their academic majors: ANR Communication, Park, Recreation and Tourism Resources, Horticulture, Agriscience, Food Industry Management, Fisheries & Wildlife, and Entomology. Three out of ten participants who reported their interpersonal skills were males with Horticulture, Park, Recreation and Tourism Resources, and Landscape Architecture majors.

Research and analytical skills

Engaging undergraduate students in their own research projects or getting them involved in faculty research activities helps students develop critical thinking and analytical skills. Many employers look for critical thinking, analytical and problem solving skills as important employable attributes in the new job applicants when making hiring decisions (Snyder, 2008; Robinson et al., 2007; Rutherford et al., 2007; Bruening and Scanlon, 1995; Gamon and Chestnut, 1995; Wheelock and Zekeri, 1988). Suvedi and Heyboer (2004) studied alumni and employer perspectives about graduates' preparation for workforce in the agriculture college at Michigan State University and found that college should better prepare its graduates for software and computer use. A similar result was found in a study by Sprecker and Rudd (1997) in which practitioners and alumni stressed skills development in desktop publishing and other computer applications.

Participants were encouraged to share their research and the analytical skills they have developed in their academic majors. Less than half of the participants indicated that they have developed research and analytical skills, which included laboratory research, field research, research proposal development, grant writing, data analysis, report writing and computer skills. Participants mentioned that undergraduate research grants, working with faculty on their research projects, either in laboratory or in fields classroom exercises or assignments, helped them develop research and analytical skills. One of the participants who received a research assistantship with a professor in a food science

laboratory reported that his research experience was helpful in developing his technical

skills:

I've worked as a research assistant for the last two years, roughly. I've got a lot of experience; I've been involved with the product development team. I've got a lot of other skills that I was able to learn by pursuing it and then making those connections. I think in a lot of ways, I know when I get out of here, I'll be able to find a good job and make a good living (Edward).

Another participant who was employed in the department in various research projects

during summer expressed his satisfaction with his skills development as:

...Being prepared for leaving this university and developing a set of skills, applicable skills, the department's been really good for providing work for the students over summer on various research projects that the professor's have. ...I've done four such separate summer research jobs through the department which have helped me figure out what I like and what I don't like. As far as critiques go, developing skills, it's really well-rounded. I'm very satisfied and I can't think of anything else right now (Rick).

One of the participants expressed that her involvement in research activities have

prepared her for the workforce:

I feel like my major has prepared me for any kind of job. In terms of skills, my major really prepared me for any sort of jobs, especially in terms of research and fieldwork which are two main components of what I want to do anyway (Tanya).

Data analysis indicated that those who reported their research and analytical

competencies, six out of nine were male participants with different academic majors

mostly from technical field of studies such as landscape architecture, food science,

forestry, entomology and pathology. Female participants comprised one third of the total

participants who reported their research and analytical competencies and they were from

fisheries and wildlife, and food industry management majors.

It is interesting to note that there was a contrasting sex difference between the participants who developed their research skills and interpersonal skills. More male participants indicated that they had developed research and analytical skills; whereas, more female participants reported they had developed their interpersonal skills.

Communication and networking skills

Communication skills, including speaking and writing skills comprise the most important and highly demanded employable skills set potential employers in agriculture desire from college graduates. A recent study of national landscape horticulture companies indicated that ability to verbally communicate ideas was a key skill for fouryear college graduates to develop (Berle, 2007). Robinson et al., (2007) investigated supervisors' and graduates' perception of the skills needed for employability and found that both employers and graduates rated listening skills to be of major importance, however, the agriculture graduates were considered only moderately competent at performing the skills. A study of potential employers of the College of Agriculture Sciences at Penn State University found that communication skills was perceived to be very important by 84% of the employers (College of Agricultural Sciences, 2004). Another study of agri-business employers by Cole and Thompson (2002) reported that excellent verbal communication skills were ranked third in the top ten attributes of the best college graduate employees and that the improvement of writing skills was the number one suggestion to improve the quality of Oregon State University's College of Agricultural Sciences graduates. Graham (2001) studied employers' perceptions about preparing college graduates, and based on the gathered feedback from employers,

undergraduates' presentation and verbal communication skills needed improvement at Agricultural and Extension Education at University of Arkansas.

Studies showed that not only potential employers but also the alumni of colleges of agriculture perceived communication skills as one of the important employable skills (Rutherford et al., 2007; Garton and Robinson, 2006; Shah et al., 2004; Zekeri, 2004; Opara, 2003). Rutherford et al. (2007) studied graduates' perceptions of career-skill preparedness and found that graduates believe they were somewhat prepared for their careers but they also recognized the importance of being better trained in communication skills, including interpersonal skills, character and computer skills. Similarly, Garton and Robinson (2006) investigated graduates' perceptions of the importance of employability skills and the contribution of the curriculum towards developing such skills. The study found that graduates rated verbal and written communication skills as of major importance and that the curriculum made major contributions towards developing verbal communication. However, curriculum made only moderate contributions towards the development of written communication skills.

In conclusion, the literature indicated that both employers and alumni perceived communication skills to be important in workplace, and graduates are not fully prepared in some aspects of communication skills.

To understand the communication and networking skills of the graduating seniors of CANR, focus group participants were asked to share their experiences with their skill building. Nine participants from three focus groups indicated that they have developed communication and networking skills, which included competencies in writing, oral presentation, and developing relationships with various individuals and organizations.

The participants who referred to their communication and networking skills mentioned that they were engaged in capstone courses, project works in community, student clubs and organizations, and internships, either individually or in groups. A participant who was working on developing wildlife management plan with community expressed her preparedness in communication competency as:

I think the Fisheries and Wildlife department really gets you prepared for communicating with people. We do projects all the time. Right now, I'm working on creating a 40-year management plan for rough grouse and veery, as to how to manipulate different vegetation types to better suit these two organisms (Emily).

While working in group projects with communities, students developed not only communication skills but also networking skills by connecting different organizations together. Students often developed communication and networking skills when working with communities in group projects:

I think sometimes we feel that there are too many group projects but in the end, looking back, I think it was really beneficial, in terms of learning how to deal with people, and especially with people you don't know. Then, when I've had the experience to go out and be with one organization and then have to partner up with another organization or multiple organizations at once, working in a group with people, I've gotten to use some of those skills and experiences in dealing with the people and connecting different organizations together (Bill).

As reported by one of the participants, she developed communication and networking competencies through classroom activities as well when faculty members invite outside speakers from various organizations and industries to share current real world examples and experiences with students. When students get opportunities to interact with experienced people from different disciplines, they will not only learn how things work in the "real world" but also develop communication and networking skills. Sophia shared her experiences working with different people:

...throughout the half of the semester he [professor] has a group of employers, a panel of employers in almost every class so it gets them a high network. And with the senior class, at that first step, we would hope that obtained internship and start networking and it's just that next step to networking towards a full-time job (Sophia).

Sophia's experience corresponds with a recent study report "Recruiting Trend 2008-2009" of Michigan State University, which recommends that students network with alumni, friends and employers to find job leads (Gardner, 2008). Studies of employers and alumni of agriculture colleges show that communication skills are one of the most important skills that agriculture graduates should possess to be competent on the market and to perform well in agribusiness (Rutherford et al., 2007; College of Agricultural Sciences, 2004; Zekeri, 2004; Cole and Thompson, 2002; Andelt et al., 1997; Bruening and Scanlon, 1995; Terry and Bailey-Evans, 1995; Litzenberg and Schneider, 1988; Broder and Houston, 1986).

Business skills

Business skills are another important skills set that should be developed by agricultural college graduates, especially for those who are inclined to work in agribusiness industries. Berle (2007) studied employer preferences in landscape horticulture graduates and found that eighty percent of the respondents indicated that undergraduate learning of business skills was either very important or somewhat important at the level of coursework and activities. Baker and MacLaughlin (1995) found business skills to be extremely important in nursery industries for entry-level managerial employees coming out of horticulture programs. Bruening and Scanlon (1995) conducted focus groups study of agribusiness individuals and representatives to advisory committees for the College of Agricultural Sciences at Penn State University, their study revealed the most desirable business skills to be human relations, organizational, managerial, and analytical thinking. Andelt et al. (1997) conducted a study of employer assessment of skill preparation of agriculture students at the University of Nebraska-Lincoln. Employers in the study noted that the college graduates should be better prepared to use general business computer software. Litzenberg and Schneider (1988) studied agribusiness managers, and they identified business and economic skills as most significant for building for successful careers in agribusiness.

In conclusion, the literature shows that agribusiness employers want new job applicants possess business skills. Focus group participants were asked to share their skills related to business. Five participants Out of 23 indicated that they had developed business skills through classroom learning and outside of the classroom activities. A participant explained that one faculty member engaged students in role playing a real client and business person in the classroom which helped her develop business (marketing) skills:

I think that they [faculty members] try in the classes by making you job shadow and mentor with people and, in one of our classes you have to work with a real client and develop a marketing campaign over the semester, so I think those kind of things have helped develop skills (Rita).

The outside classroom activities included personal work experience and group projects in communities. Mack had a different experience from Rita has in developing his business skills. Mack believed that he developed his business skills through his experience

working with nursery people and he is satisfied with level of his business skills. He

speaks of his business competencies in working with large nursery suppliers:

I'm dealing with nursery people, with large suppliers; you have to know what you're talking about. You can't just stand there and say, "I want a tree." I have to be able to talk intelligently and say why I want this certain type of tree, should it go in a shaded area, or do I want this type of tree because of the soil. You've got to be able to talk this with them and I can do that very well. It's the type of skills that I'm very much impressed and very happy with what I've learned (Mack).

Bill developed business skills in his classroom activities and outside the

classroom projects. He expressed his confidence in business skills that he plans to utilize

in the adventure tourism industry:

It's a little difficult for me to differentiate where I got different skills because I've had quite a few experiences outside of the classroom as well where I've gained some of the business side skills that I've gotten. ...I think overall I feel pretty comfortable going into the adventure tourism industry and working (Bill).

In the statement above, Bill mentioned that he is not sure where he developed his range of business skills. Barr and McNeilly (2002) suggest that educators must communicate learning objectives through writing and explain the specific skills students will develop upon completion of those activities to ensure that students are aware of their skillbuilding in advance.

Leadership skills

Review of literature indicated that employers, students, and alumni highly valued leadership skills as the important employable skills. A recent study of leadership skills sought by employers found that team-work skills, the ability to work in stressful condition, and the ability to work independently to be the most important leadership skills (Robinson et al., 2007). A study of employers' assessment of competencies taught in the equine program at the University of Arkansas indicated that leadership skills were stressed in the equine program curriculum (Jogan and Herring, 2007). According to Shivpuri and Kim (2004), employers perceived leadership skills to be crucial skills that must be developed in college programs. Employers ranked leadership skills within the top third among 12 dimensions of college student development. However, in the same study, college department heads ranked leadership skills in the bottom third, which indicated that they did not deem leadership skills as important as the employers did. Thus, Shivpuri and Kim stated that college graduates are not building the skills that employers value most. Cole and Thompson (2002) reported that agribusiness employers indicated leadership skills to be one of the top ten attributes of best college graduate employee.

Other studies show that students in college of agriculture acknowledge the importance of developing leadership skills (Schumacher and Swan, 1993; Love and Yoder, 1989). A study of college of agriculture students at a land-grant university showed that students who worked in agri-business desired leadership skills to a greater extent than students who worked on a farm (Schumacher and Swan, 1993).

In order to understand whether the CANR students believe they have developed good leadership skills, focus group participants were asked to reflect their experiences. Four of 23 participants indicated that they had developed leadership competencies primarily through involvement in students' clubs and organizations and internships. Students' clubs and organizations included Forestry Club, FFA, Student Senate, etc.. During the focus group discussion, a participant who served as the president of Forestry Club in the CANR at MSU mentioned: I've been in this college for three years and I'm the forestry club president, and I believe that I am relatively involved in the things. I discuss things in departments (Nelson).

The findings of this focus group study in regards to leadership development are in agreement with study findings of Layfield (2000) who found significant positive relationships between participation in department clubs and leadership skills. Other leadership studies also show that students who participated in a variety of organizations and activities such as athletics, intramurals, department clubs, FFA, 4-H, and church groups develop leadership skills (Birkenholz and Schumacher, 1994).

Participants' suggestions regarding the development of employable skills

The focus group participants answered a follow up question about employable skills and what they believe can be done to develop these skills in students. The participants across all three focus groups pointed out some weaknesses in the curricula in developing certain employable skills and they offered a wide range of suggestions to improve the overall program within the CANR, which are briefly discussed below:

Improving technical skills

The focus group participants from forestry, horticulture, and entomology majors felt that their academic programs were more research-oriented, which did not aide students enough in developing the technical skills required by the industries in their professional disciplines. Participants indicated that not everybody in their academic major will go on to a graduate program and that a vast majority will seek employment immediately upon their graduation. Thus, focus group participants suggested having a greater focus on industry in their respective academic programs. The suggestion offered by participants is consistent with the findings of Quitadamo and Kurtz's (2007) and

Gamon and Chestnut (1995). In both of these studies, students expected classes to be specifically related to industry demands since the majority of students would join the workforce outside of academe.

Participants from the Packaging and the Crop and Soil Science programs expressed concerns that the courses they were supposed to take in other departments were neither easy to register for nor were these classes relevant to and effective for developing the specific technical skills relevant to their primary major. Thus, participants recommended offering more relevant courses within their home department, if possible. For example, AutoCAD might be offered in Packaging curricula and a crop genetics course in Crop and Soil Science department.

Another participant from ANR Communication commented that she was not able to develop the necessary technical skills in audio-visual and multimedia since the class was conducted rushed manner. She recommended that faculty provide enough time for students to practice and develop hands-on learning opportunities in audio-visual and multimedia.

Improving communication and leadership skills

Participants in ANR Communication major indicated that they were not able to develop the necessary communication and leadership skills within their major. One participant mentioned that she had problems getting into magazine writing courses and photo journalism classes in other departments. Another participant mentioned that her program offered many group opportunities, but she could not understand how those activities were relevant to building her communication and leadership skills. Thus, participants recommended that the Department of Community, Agriculture, Recreation

and Resource Studies (CARRS) institute writing courses that are more specific and relevant to ANR Communication; establish computer lab equipped with necessary equipment for developing audio-visual and multimedia skills; and instruct faculty to give clear instructions about course objectives and explain how students will be developing certain skills.

Other comments

During the focus group discussions, participants also raised additional concerns that affected their academic studies and offered some suggestions. The issues included: some faculty members not being well-prepared in the classroom teaching and being more focused on research; outdated teaching materials; lack of participation of faculty members in professional meetings and seminars; unprepared and unknowledgeable teaching assistants who lack enthusiasms for teaching; and vacant faculty positions not being refilled. Participants also felt that not enough student feedback was obtained when developing the new curricula, and they reported that only the most outspoken students were consulted in the process. Some participants expressed their sense that their majors were either ignored or discriminated by either the college or department. Some participants also indicated that college teaching is not integrated to develop holistic learning process but it is segmented due to lack of coordination among departments.

Participants suggested that faculty members should balance teaching and research responsibilities, update their teaching materials, and participate in regional and national professional meetings and seminars. Similarly, teaching assistants should be better prepared and show enthusiasm when teaching. Finally, the college/department should fulfill vacant faculty positions.

Conclusions and Recommendations

Based on the findings from the online survey and the themes that emerged from the analysis of focus group data, the following conclusions have been drawn and recommendations have been made related to each research objective.

I. Services and assistance provided by the Dean's Office in the CANR at MSU

The Dean's Office provided such services as study abroad information and scholarships, undergraduate research grants, career advising services, and administrative support to change and/or declare academic majors. Given the online survey and focus group findings, it can be concluded that the majority of participants were satisfied with assistance from the Dean's Office. Those participants who did not receive services from the Dean's Office were either not aware of the services or received enough information and services from their respective academic departments/schools. The focus group discussion findings suggest there was inadequate communication and dissemination of information about programs and services from the Dean's Office. With regard to study abroad participation, the main obstacle of non-traditional student, particularly the single parent, was family responsibility of taking care of children. For instance, one participant who described himself as single parent was willing to participate in study abroad along with his son on his own cost provided such policy exists in the CANR or at MSU.

Based on the above conclusions, it is recommended that: i) The Dean's Office communicate more frequently with students via e-mail and disseminate information through updated college websites, academic orientation programs (AOP), academic departments/schools, and advisors.

ii) The college or university develop policies to encourage participation of nontraditional students in study abroad programs.

II. Services and assistance provided by the academic departments/schools in the CANR

Results of the online survey suggest that majority of the respondents were satisfied with the departmental/school services. Four themes—academic advising, internships and career services, undergraduate research, and study abroad programs emerged from focus group discussions regarding the services or assistance provided by departments/schools. Among these services, academic advising was the most frequently reported service used by the majority of participants. Based on online survey and focus group discussions results, it is concluded that academic advisors were accessible, caring, helpful and personable. However, given the results of the focus group discussions, a few advisors were uncaring and inattentive to students needs and that they lacked accurate information about degree requirements. Participants first tried to find digital information, and if they did not find the information, only then did they approach their advisors. The website information about degree program requirements was not found to be useful.

Internships and career services are extremely important for college graduates marketability. Both online survey and focus group discussions revealed that participants were happy with internship opportunities available for them and the information they received about internships. Faculty members, career fairs, and student clubs were instrumental for internships and career services for students. Presentations by industry specialists and outside speakers in classrooms proved effective for supplying information about internships opportunities. Participants knew well in advance about internships and available career services. Some participants received undergraduate research grants and

some had opportunities to get involved in research activities through faculty research projects. However, participants were not satisfied with the career services they received with regard to their major advisor/Career Consultant's encouragement to participate in volunteer programs or unpaid internships and the advisor/Career Consultant's assistance in finding the student's first professional job after graduation.

Academic departments encouraged students to participate in study abroad programs. Study abroad programs were perceived to be a worthwhile and wonderful experience. Participants spoke highly of college, departments/schools, and faculty members and their encouraging students to participate in study abroad programs. The importance of study abroad in higher education was not questioned, but its relevancy to a student's primary major was questioned. Online survey results indicated that students in the CANR need more assistance in finding the first professional job after graduation, participating in volunteer programs or unpaid internships, and acquiring interviewing and resume writing skills.

Based on the conclusions drawn from the online survey and focus group discussions, the following recommendations are made:

a) The college should maintain the good academic advising services and provide refresher training for existing advisors and intensive academic advising training for the new advisors.

b) The college and department should update and make their websites interactive.c) Faculty and professional advisors should make use of more technology for online advising or include virtual academic advising because today's college student population is technologically savvy.

d) The college and departments/schools should create more internship opportunities by working with potential employers and encourage more students get involved.

e) Research should be conducted to find out major obstacles to study abroad for ethnic minorities and nontraditional students and make study abroad programs more relevant to students' specific majors.

III. Development of employable skills during undergraduate studies

One of the goals of higher education is that students develop various skills set that will make their professional career rewarding. Both the online survey and focus group discussions revealed that students developed a wide range of skills set. From the focus group discussions, six themes emerged regarding skills sets, which included technical skills, interpersonal skills, research and analytical skills, communication and networking skills, business skills, and leadership skills. These skills sets were developed not only through classroom activities but also through out-of-classroom activities, such as work on campus, laboratories, field exercise, internships, and group projects. Involvement in students' clubs and extracurricular activities was also instrumental in developing these skills set.

The majority of participants spoke highly about the technical skills and competencies that they gained through hands-on learning activities. Overall, participants expressed confidence in their technical competencies, which indicate that the undergraduate programs in the CANR have prepared them "technically" well for agricultural employment. However, participants were not as confident about their other skill sets, which are equally important and required in agricultural and allied industries.

The least developed skill sets were diversity skills, computer technology and database skills, research skills, business skills, and leadership skills. Some reasons for such lower levels of skills development were: few relevant courses offered outside the CANR, emphasis on research-focused teaching activities rather than on industrial applications, courses taught in rushed manner with students receiving little time to put concepts into practice, and lack of adequate computers with such appropriate software as AutoCAD and multimedia software.

The following recommendations are made based on the above conclusions: a) The required courses should be offered within the CANR or the advisors should help students get courses registered they want to take.

b) The CANR program should equally prepare graduates in the varieties skill sets needed for the agricultural industries. The program should provide balance in developing skill sets for those who are going to graduate schools and for those who are entering the workforce immediately upon the graduation.

c) Provide students adequate time to practice and establishing computer labs with the latest software.

d) Make educational activities inquiry-based and promote critical and analytical thinking skills by providing more opportunities for students to engage in research and scholarly activities.

e) Promote student clubs and organizations and encourage students to participate in extracurricular activities that will help them develop leadership, presentation, and public speaking skills.

f) Maintain the practice of inviting industry people and to do presentations in classrooms regarding the latest business trends and the key business skills that employers define from new job applicants.

g) Get feedback from industry people when developing course curricula to focus on workplace skills and find more internship opportunities for college seniors.

Recommendation for the future research

The literature indicates that a discrepancy exists between college administrators and employers in regards to the skills students must develop before graduating. Thus, a final recommendation is that the CANR conduct further studies on the disparity between college administrators' and employers' perceptions of employable skills and the university's job preparation of its graduates. Alreck. Andelt Appl Bake Bai Ba Be Ber Birl Boy Brode

REFERENCES

- Alreck, P. L. & Settle, R. B. (2004). *The Survey Research Handbook*. New York: McGraw-Hill/Irwin.
- Andelt, L. L., Barrett, L. A. & Bosshamer, B. K. (1997). Employer Assessment of the Skill Preparation of Students from the College of Agricultural Sciences. NACTA Journal 46(1): 34-39.

Appleby, D. (2001). The Teaching-Advising Connection. The Mentor 3(1).

- Baker, M. & MacLaughlin, P. (1995). Perceptions by the Nursery Industry of the Higher Education Support Course Needs of Beginning Employees. Paper presented at the 44th Annual Southern Agricultural Education Research Meeting, Wilmington, NC.
- Barkley, A. P. (1991). What Skills Do Graduates Need? NACTA Journal 35(1): 53-57.
- Barr, T. F. & McNeilly, K. M. (2002). The Value of Students' Classroom Experiences from the Eyes of the Recruiter: Information, Implications, and Recommendations for Marketing Educators. *Journal of Marketing Education* 24(2): 168-173.
- Beasley-Fielstein, L. (1986). Student Perceptions of the Developmental Advisor-Advisee Relationship. NACADA Journal 6(2): 107-117.
- Berle, D. (2007). Employer Preferences in Landscape Horticulture Graduates: Implications for College Programs. *NACTA Journal 51*(1): 21-21.
- Birkenholz, R. J. & Schumacher, L. G. (1994). Leadership Skills of College of Agriculture Graduates. *Journal of Agricultural Education* 35(4): 1-8.
- Boyer Commission (1998). Reinventing Undergraduate Education: A Blueprint for America's Research Universities. Boyer Commission on Educating Undergraduates in the Research University. State University of New York at Stony Brook for the Carnegie Foundation for the Advancement of Teaching.
- Broder, J. M. & Houston, J. E. (1986). Employer Assessments of Graduates. NACTA Journal 30(2): 18-22.

- Bruening, T. H. & Scanlon, D. C. (1995). Communications and Business Curricular Needs of Agribusiness Employees. *NACTA Journal 39*(1): 28-32.
- Cole, L. & Thompson, G. (2002). Satisfaction of agribusiness employers with college graduates they have hired. *NACTA Journal 46*(1): 34-39.
- College of Agriculture and Natural Resources. (2008). *International Programs*. Retrieved December 27, 2008, from http://www.canr.msu.edu/canrhome/intn_prog.htm.
- College of Agricultural Sciences (2004). *Strategic Plan Input Survey: Employer Survey*. College of Agricultural Sciences, Penn State University, College Square, PA.
- CollegeGrad.com. (2008). Survey Results Detail What Top Entry Level Employers Want Most. Retrieved November 15, 2008, from http://www.collegegrad.com/press/what-employers-want.shtml.
- Corts, D. P., Lounsbury, J. W., Saudargas, R. A. & Tatum, H. E. (2000). Assessing Undergraduate Satisfaction with an Academic Department: A Method and Case Study. College Student Journal 34(3): 399-408.
- Delaney, A. (2001). Assessing Undergraduate Education from Graduating Seniors' Perspective: Peer Institutions Provide the Context. *Tertiary Education and Management* 7(3): 255-276.
- Donald, J. G. & Denison, D. B. (1996). Evaluating Undergraduate Education: the use of broad indicators. Assessment & Evaluation in Higher Education 21(1): 23-39.
- Gamon, J. & Chestnut, D. (1995). A Focus Group Assessment of College of Agriculture Seniors. *NACTA Journal 39*(1): 25-27.
- Gardner, P. (2008). *Recruiting Trends 2008-2009*. The Collegiate Employment Research Institute and the MSU Career Services Network at Michigan State University, East Lansing.
- Garton, B. L. & Robinson, J. S. (2006). *Tracking Agricultural Education Graduates' Career Choice, Job Satisfaction, and Employability Skills*. Paper presented at the American Association for Agricultural Education conference, Charlotte, NC.

- Gilmore, J. L., Goecker, A. D., Smith, E. & Smith, P. G. (2006). Shifts in the Production and Employment of Baccalaureate Degree Graduates from U.S. Colleges of Agriculture and Natural Resources: 1990-2005. Paper presented at A Leadership Summit to Effect Change in Teaching and Learning, Washington, DC.
- Graham, D. L. (2001). Employer Perception of the Preparation of Agricultural and Extension Education Graduates. *Journal of Southern Agricultural Education Research 51*(1): 88-101.
- Hembroff, L. A. (2008). MSU Student Perceptions of Problems and Use of University Programs and Services: Summary Reports. Institute for Public Policy and Social Research, Michigan State University.
- Horstmeier, R. P. (2006). Mentoring in a College of Agriculture: Faculty Perspectives of Student Advisement. *NACTA Journal 50*(4): 47-53.
- Hu, S., Kuh, G. & Gayles, J. (2007). Engaging Undergraduate Students in Research Activities: Are Research Universities Doing a Better Job? *Innovative Higher Education 32*(3): 167-177.
- Institute of International Education (2007). Meeting America's Global Education Challenge: Current Trends in U.S. Study Abroad & The Impact of Strategic Diversity Initiatives. Institute of International Education (IIE).
- Jogan, K. S. & Herring, D. R. (2007). Selected Potential Employers' Assessment of Competencies Taught in the D.E. King Equine Program at the University of Arkansas. Paper presented at the 2007 AAAE Southern Region Research, Mobile, AL.
- Katkin, W. (2003). The Boyer Commission Report and its Impact on Undergraduate Research. New Directions for Teaching and Learning 2003(93): 19-38.
- Kitto, S. L., Smith, W. G., Sims, J. T., Morehart, A., Vasilas, B. & Pesek, J. (1996). Evaluation of the Curriculum of a Department of Plant and Soil Science. NACTA Journal 40(2): 24-31.
- Koh, H.-K. (2008). The Impact of Community Colleges on International Education. Retrieved December 21, 2008, from http://opendoors.iienetwork.org/?p=42055.

- Kretovics, M. A. & McCambridge, J. A. (1998). Determining what employers really want: Conducting regional stakeholder focus groups. *Journal of Career Planning* & Employment 58(2): 25-30.
- Krueger, R. A. & Casey, M. A. (2000). Focus Groups: A Practical Guide for Applied Research. Thousand Oaks, California: Sage Publications Inc.
- Larson, K., Grudens-Schuck, N. & Allen, B. L. (2004). Can You Call It a Focus Group? Methodology Brief. Iowa State University Extension. Retrieved February 22, 2008 Iowa State University Extension, from http://www.extension.iastate.edu/publications/pm1969a.pdf.
- Layfield, K. D., Radhakrishna, R. B. & Andreasen, R. J. (2000). Self-Perceived Leadership Skills of Students in a Leadership Program in Agriculture Course. Southern Agricultural Education Research 50(1): 62-68.
- Leonhardy, L. H. & Jimmerson, R. M. (1992). Advising Needs as Perceived by Students, Advisors, and Administrators. *NACTA Journal 36*(4): 37-41.
- Lingrell, S. A. (1992). Student Outcomes Assessment: The Senior Survey (Report No. HE 025950). Bowling Green: Bowling Green State University. (ERIC Document Reproduction Service No. ED351897)
- Litzenberg, K. K. & Schneider, V. E. (1988). Educational Priorities for Tomorrow's Agribusiness Leaders. Agribusiness 4(2): 187-195.
- Love, G. M. & Yoder, E. P. (1989). An Assessment of Undergraduate Education in American Colleges of Agriculture. Part I: Perceptions of Faculty. Part II: Perceptions of Graduating Seniors. Part III: Perceptions of Other University Students. (054039). Pennsylvania State University, University Park, College of Agriculture.
- McAnulty, B. H., O'Connor, C. A. & Sklare, L. (1987). Analysis of Student and Faculty Opinion of Academic Advising Services. *NACADA Journal* 7(1): 49-61.
- Michigan State University. (2008). Outcomes of Liberal Learning. Michigan State University Board of Trustees. Undergraduate Education. Michigan State University Board of Trustees. Undergraduate Education. Retrieved November 20, 2008, from http://undergrad.msu.edu/outcomes.html.

.....

- Michigan State University. (2008). MSU among top universities for study abroad participation, international enrollment. MSU News. MSU News, Michigan State University. Retrieved December 27, 2008, from http://news.msu.edu/story/5728/&keyword_search=study%20abroad&keyword_a ction=all_words.
- Myers, B. E. & Dyer, J. E. (2005). A Comparison of the Attitudes and Perceptions of University Faculty and Administrators Toward Advising Undergraduate and Graduate Students and Student Organizations. *NACTA Journal* 49(4): 34-40.
- NAFSA (2003). Securing America's Future: Global Education for a Global Age: Report of the Strategic Task Force on Education Abroad. Association of International Educators (NAFSA).
- Opara, L. U. (2003). From farmers to blue-collar professionals: agricultural engineering students' perspectives on their career prospects, critical skills and discipline name change. *World Transactions on Engineering and Technology Education 2*(3): 399-402.
- Pace, C. R. (1985). Perspectives and problems in student outcomes research. New Directions for Institutional Research 1985(47): 7-18.
- Petress, K. C. (1996). The multiple roles of an undergraduate's academic advisor. *Education 117*(1): 91 & 60.
- Polson, C. J. & Gordon, V. N. (1988). Issues in Academic Advising Revisited. NACADA Journal 8(2): 49-58.
- Quitadamo, I. J. & Kurtz, M. J. (2007). Learning to Improve: Using Writing to Increase Critical Thinking Performance in General Education Biology. *Life Science Education 6*: 140-154.
- Radhakrishna, R. B. & Thompson, J. S. (1997). Academic Advising in Agricultural and Extension Education: An Empirical Study. *NACTA Journal* 42(3): 15-18.
- Robinson, J. S., Garton, B. L. & Terry Jr., R. (2007). Identifying the Employability Skills Needed in the Workplace According to Supervisors of College of Agriculture, Food and Natural Resources Graduates. *Journal of Southern Agricultural Education Research 57*(1): 95-110.

- Robinson, J. S., Garton, B. L. & Terry Jr., R. (2007). *The Leadership Skills Sought By Employers of College of Agriculture Graduates*. Paper presented at 2007 AAAE Southern Region Research, Mobile, AL.
- Russell, S. H., Hancock, M. P. & McCullough, J. (2007). THE PIPELINE: Benefits of Undergraduate Research Experiences. *Science 316*(5824): 548-549.
- Rutherford, T., Stedman, N., Felton, S., Wingenbach, G. & Harbin, J. (2007). Developing Skills for the Future: Graduates' Perceptions of Career Skill Preparedness and Importance After a Four-Year Undergraduate Program. Paper presented at 2007 AAAE Southern Region Research, Mobile, AL.
- Schumacher, L. G. & Swan, M. K. (1993). Need for formal leadership training for students in a Land-grant College of Agriculture Journal of Agricultural Education 34(3): 1-9.
- Shah, A., Pell, K. & Brooke, P. (2004). Beyond First Destinations: Graduate Employability Survey. Active Learning in Higher Education 5(1): 9-26.
- Shivpuri, S. & Kim, B. (2004). Do employers and colleges see eye-to-eye? National Association of Colleges and Employers Journal 65(1): 37-44.
- Snyder, S. (2008). Perceptions of Employers of Graduates of the Agricultural Systems Management Program Regarding Skills and Competencies Needed for Successful Employment. Unpublished master's thesis, University of Missouri-Columbia.
- Spinosa, H., J.Sharkness, Pryor, J. H. & Liu, A. (2008). Findings from the 2007 Administration of the College Senior Survey (CSS): National Aggregates. Higher Education Research Institute, University of California Los Angeles.
- Sprecker, K. J. & Rudd, R. D. (1997). Opinions of Instructors, Practitioners, and Alumni Concerning Curricular Requirements of Agricultural Communication Students at the University of Florida. *Journal of Agricultural Extension 38*(1): 6-13.
- Suvedi, M. & Heyboer, G. (2004). Perceptions of Recent Graduates and Employers about Undergraduate Programs in the College of Agriculture and Natural Resources at Michigan State University: A Follow-up Study. *NACTA Journal 48*(1): 22-27.

- Terry, R. J. & Bailey-Evans, F. J. (1995). Competencies Needed for Graduates of Agricultural Communications Programs. Paper presented at the 44th Annual Southern Agricultural Education Research Meeting, Wilmington: NC.
- Twombly, S. B. (1992). Student Perspectives on General Education in a Research University: An Exploratory Study. *Journal of General Education 41*: 238-272.
- Wachenheim, C. J. & Lesch, W. C. (2002). Assessing New-Graduate Applicants: Academic Perceptions and Agribusiness Realities. *Journal of Agribusiness 20*(2): 163-173.
- Wheelock, G. C. & Zekeri, A. A. (1988). Evaluation of Curriculum Competencies and Skills by Land-Grant University Alumni. Paper presented at the 85th Annual Meeting of the Southern Association of Agricultural Scientists, New Orleans, LA.
- Wilson, E., Flowers, J., Croom, B. & Moore, G. (2004). Evaluating an Undergraduate Program Using Outcomes-Based Assessments. *NACTA Journal* 48(3): 19-24.
- Zekeri, A. A. (2004). College curriculum competencies and skills former students found essential to their careers. *College Student Journal 38*(3): 412-422.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Colleges of agriculture in the United States are constantly adapting to a changing environment. The demographic composition of today's college students has changed in many ways. Research shows that the proportion of first-time, full-time White students has declined, whereas the proportion of African American students has increased. The Asian American student population has nearly doubled each decade from 1971 to 2006. The proportion of Latinos entering college to earn a Baccalaureate degree has doubled from 1971 to 1980, and tripled from 1990 to 2000. Similarly, the gender composition of college freshman has changed. The proportion of female students is rising and the proportion of students coming from farm or rural background is decreasing. Today's college students come more from suburban and urban areas and have no prior experience with agriculture, which may pose a challenge for agricultural education.

Shrinking federal and state funding has compelled higher education institutions to raise tuition, which could impact on college participation of students from low-income families. The American agricultural and food systems have changed, and American farms are becoming more efficient in production, smaller in number, larger in size, and highly mechanized. Consumers' preferences for food has changed as well. Today's consumers of agricultural products are more health conscious and prefer buying organic, natural, and local food. Consumers have influenced the production of agricultural crops as well as relevant policy. Thus, the changes in agriculture and food systems have required colleges of agriculture to prepare graduates who can meet the changing needs of agricultural industries and consumers.

American farmers have been increasing trade in the international marketplace, and U.S. agriculture has been impacted by foreign markets. When agribusiness becomes more involved in the international marketplace, it demands a well experienced workforce trained in the subject of globalization; this calls for internationalization of curricula in colleges of agriculture.

In the changing context of demographic composition of prospective students, shrinking financial resources due to the current economic downturn, increasing college tuition and costs, changing agricultural systems and consumer preference, and the globalization of the economy, it is critical that the college of agriculture develop and adapt new policies regarding student recruitment and revise course curricula to meet students' needs and expectations.

The purpose of this study was to analyze and describe the perspectives of undergraduate students about their experiences in the CANR at MSU. Specifically, the study attempted to address the following research questions:

- 1. What are the demographic characteristics of the CANR students and what influenced their decision to join the CANR program?
- 2. What is the weekly time use profile of students in various academic and extracurricular activities?
- 3. How do students perceive course offerings, academic advising, and internationalization of curricula in the CANR?
- 4. What do graduating seniors say about college and departmental services and employable skills upon graduation?

The study population was the current and the graduating senior students in the CANR at MSU. This study utilized: i) online survey method to collect data from the current students, and ii) focus group interviews of the graduating seniors.

The online survey was administered in spring semester of each year from 2004 to 2008. A total of 2,798 students participated in the survey, an aggregate of 24.5 percent response rate for the five-year study. Data were analyzed by using simple descriptive statistics (frequency count, mean, and standard deviation), test of differences for group means (t-test and F test), and Chi-square test of association.

Three focus group interviews of the graduating seniors in the CANR were conducted in the spring of 2008. Twenty-three graduating seniors, 10 female and 13 male, representing thirteen majors from eleven academic departments/schools, participated in focus groups. Focus groups were conducted by adopting the procedure suggested by Krueger and Casey (2000). Focus group participants were identified with the help of the Associate Dean of the undergraduate program in the CANR. Focus group sessions were moderated using the interview protocol (discussion guide), and the same procedures were used for all three groups. The entire group discussions were audio taped. Participants were provided refreshments along with \$20 cash per person as an incentive for their participation. Data were analyzed qualitatively. Audio tapes were transcribed verbatim in a Microsoft Word document. Key themes that emerged from the discussions of each session were identified. Opinions and ideas were compared and contrasted between the focus groups. A few quotations were used to illustrate the key points when appropriate.

Summary of Findings

Findings on demographic characteristics of respondents showed that vast majority of respondents in this study were White females from suburban or urban communities, and residents of the state of Michigan. Less than a quarter of the respondents had participated in 4-H and FFA activities, which indicated that large majority of respondents did not have prior backgrounds in agriculture and related clubs and organizations. More than half of the respondents were members of the National Honor Society when they were in high school.

Students joining the CANR programs followed four major routes. Transfer students within MSU was the most frequently mentioned route, accounting for 41%, followed by students directly from high school (36.2%), and then students from community colleges (13.3%). Transfer students from other colleges and universities were the fourth major route, accounting for 8.2% of the total respondents.

Findings on sources of information used by respondents to learn about the CANR programs indicated that family and friends, (31.8%), were the most used source of information for prospective students in the CANR. This source of information was followed by university/college websites, (27.1%) and printed materials, (12.2%). Nearly ten percent of the respondents received information from the University Undergraduate Division (UUD).

Respondents indicated that an academic program/curriculum better suited to the students' interest, reputation of the CANR, and opportunity for internships were the top three "very important" factors in deciding on a CANR major. Academic advising and

recommendations of friends, alumni, and family members were "somewhat important" factors.

Recommendations of friends, alumni and family members, and opportunities for study abroad were other important factors for respondents who entered the CANR directly from high schools. Credit evaluation and transfer, opportunities for internships, and scholarship and financial aid were other "very important" factors for respondents who transferred from community colleges. Similarly, opportunity for internships, and credit evaluation and transfer were other "very important" factors for transfer students from other colleges/universities. Respondents who transferred to CANR from within MSU indicated that academic advising in the CANR was "very important" for their transfer decision.

The CANR respondents were asked to indicate an approximate number of hours per week spent on six different activities during a typical week at MSU. To compare the results of this study with the NSSE (2008) study, the researcher requested an NSSE staff member to conduct a special analysis of only Agriculture and Natural Resources (ANR) respondents. To make the findings comparable, the CANR study data were recoded into interval scale following the NSSE scale of 1 to 8.

Findings of students' weekly time use (hours/week) profile were: i) preparing for class (15.2), ii) working for pay on-campus (13.5), iii) working for pay off-campus (16.9), iv) participating in co-curricular activities (6.1), v) relaxing and socializing (16.2), vi) providing care for dependents (11.6), and vii) commuting to class (5.0).

Comparison of weekly time use profile between the CANR students and ANR respondents from the NSSE (2008) survey revealed that the CANR students spent more

time preparing for class, working for pay-on campus, relaxing and socializing, and commuting to class than did ANR respondents in the NSSE (2008) study. The ANR respondents in the NSSE (2008) spent more time in working for pay off-campus, participating in co-curricular activities, and providing care for dependents than did the CANR students at MSU. In both studies, students spent more time relaxing and socializing than on other activities.

Findings on time use by demographic characteristics of students revealed that senior and junior students spent more time working for pay (on-campus and off-campus), and providing care for dependents than did freshman and sophomore students. Freshmen spent significantly more time relaxing and socializing than did students in other class levels.

With regard to time use by gender, female students spent more time preparing for class and commuting to class than did male students. Male students spent more time working for pay (on-campus and off-campus), participating in co-curricular activities, and relaxing and socializing than did female students.

By ethnicity, Students of Color spent more time working for pay on-campus and commuting to class than did White students. White students spent more time relaxing and socializing than did Students of Color.

Regarding time use by residential background, students from urban communities spent more time preparing for class, and relaxing and socializing than did students from rural communities. Students from rural communities spent more time commuting to class than did students from urban communities.

Findings on students' perceptions about course offerings and faculty help indicated that respondents felt most required courses were offered every year. Respondents also agreed that courses were taught by experienced faculty members and the faculty were accessible and approachable. However, respondents did not agree on the statement that courses were scheduled at convenient times.

Respondents' perception about academic advising was positive. They agreed that major advisors were easily accessible, knowledgeable about degree requirements, and helpful in solving academic problems. However, respondents were in least agreement with regard to their major advisors' encouragement to participate in study abroad and volunteer programs. Overall, respondents were satisfied with academic advising in the CANR.

Four out of ten respondents indicated they took courses that focused on international issues. The same proportion of respondents planned on taking a course that focused on international issues as those who did not. Nearly half of the respondents (47.7%) indicated that CANR faculty members "occasionally" shared international issues and/or case studies with students. One in twenty respondents indicated that they were involved in international research/outreach projects.

One out of ten respondents participated in study abroad programs, and four out of ten had plans to participate. The demographic profile of study abroad participants indicated that majority of the participants were White females from urban residential backgrounds who were members of the National Honor Society during high school.

Analysis of open ended responses revealed that faculty, teaching and academic advising, hands-on learning and career opportunities, and course curricula were the

strengths of CANR program. Respondents spoke highly about qualities of faculty members and their teaching, and expressed great satisfaction with academic advising. However, some respondents indicated that poor quality of teaching and academic advising, too general nature of course curricula, and irregular course offering and scheduling conflicts were the major weaknesses of CANR program. Respondents offered suggestions to overcome those weaknesses, such as increasing the hands-on learning and career opportunities and improving teaching and academic advising.

The CANR Dean's Office has offered services and assistance regarding study abroad, career advising, scholarships, and undergraduate research grants. Participants who received services or assistance from the Dean's Office were happy, and they described the staff as knowledgeable, very helpful, service oriented, and good at communication. Not all participants who received services from the Dean's Office had positive experiences. A few participants were not very happy with the services they received from the Dean's Office because of poor communication. A participant who received an undergraduate research grant mentioned that she had to send several e-mails to the Dean's Office to find out the status of her application. One participant, who claimed to be a non-traditional returning student, expressed his concerns that as a single parent he could not participate in the study abroad program because he could not leave his teenage son alone at home for several weeks. He further commented that he could take his son to study abroad with him if there were such policy provision.

Participants who did not receive any services or assistance indicated that they had no idea about what the Dean's Office offers to students. Some participants who did not visit the Dean's Office for services mentioned that they were getting enough information
and services from their respective departments/schools. Participants suggested that there should be more communication between the Dean's Office and students. Participants also suggested the Dean's Office develop study abroad policy which will allow non-traditional students to participate with children at their own expenses.

With regard to support and services provided by academic departments/schools, four themes emerged from focus group discussions: academic advising, internships and career services, research activities, and study abroad programs. Academic advising was the most frequently mentioned support to students. Participants characterized their advisors as 'friendly', 'always available and accessible', 'knowledgeable', 'helpful', 'nice', 'good communicator', 'very open', and 'great'. Overall, the majority of participants were satisfied with the academic advising provided to them.

Participants indicated that they were well-informed about various internship opportunities and career services available to them in the CANR because faculty members had good connections with industry, the alumni network, and professional organizations. Some faculty members invited industry staff in for classroom presentations, which provided the CANR students opportunities for direct interaction with industry people, allowing students to build relationships with them and explore availability of internships services.

Participants described their professors as very helpful with involving them in research projects. Individual faculty members and the departments strongly encouraged students to participate in study abroad programs by providing scholarships. As indicated by one participant, the department valued the study abroad program so much that almost all the students participated in the study abroad program.

With regard to contribution of the CANR program to development of employable skills, data analysis revealed that participants developed six types of skills sets: technical skills, interpersonal skills, research and analytical skills, communication and networking skills, business skills, and leadership skills. Participants confidently mentioned that they had developed technical skills in their primary major through employment opportunities on campus, laboratory works, field exercises, internships, working in group projects, and involvement in professional students' clubs. Similarly, participants' interpersonal skill sets were developed through work employment, group projects working with communities developing management plans, student organizations like FFA, and personal projects. Less than half of the participants indicated that they had developed research and analytical skills through undergraduate research grants, working with faculty in their research projects either in laboratory or in fields, and classroom exercises and assignments. Similarly, less than half of the participants indicated that their communication and networking skills developed while engaging in a capstone course, project works in community, student clubs and organizations, and internships, either individually or in groups.

Out of 23, only five participants indicated that they had developed business skills through classroom teaching activities such as role playing a real client and business person, and outside the classroom activities. A similar number of participants indicated that they had developed leadership competencies primarily through involvement in students' clubs and organizations and internships. Students' clubs and organizations included Forestry Club, FFA, Student Senate, etc..

A few participants commented that they had not been able to develop adequate technical skills in their major because the focus of teaching was more on research and less emphasis was given to industry application. A participant commented that fast paced teaching hindered her from developing technical skills in audio-visual and multimedia because she did not have enough time to practice. Similarly, a few participants indicated that they were not able to develop communication and leadership skills because they had problem enrolling in the magazine writing course or photo journalism courses. A participant mentioned that due to lack of clear instruction in classroom teaching, she was not able to relate how teaching and learning activities were going to develop certain skills.

Conclusions and Recommendations

The demographic characteristics indicated that the CANR student population still lacked ethnic diversity and prior experience in agriculture or working in agriculture related organizations such as 4-H and FFA. The CANR student makeup was largely transfer students, which accounted for two-thirds (63.8%) of the total respondents. Family and friends were the most influential source of information for students to learn about CANR programs. Students preferred digital information to printed materials. Academic program/curriculum, reputation of college, and opportunity for internships were "very important" factors for students' decision to choose a college major. Credit evaluation and transfer was important among transfer students in making the decision to join a CANR major.

The CANR students tended to spend more time working, and relaxing and socializing than in academic activities. The CANR students at MSU spent more time

preparing for class than did ANR students in the NSSE study (2008). However, students spent more time relaxing and socializing than engaging in academic activities. Students' weekly time use differed by their demographic characteristics for certain activities.

Students positively perceived course offerings and faculty help. Similarly, respondents were satisfied with academic advising. Based on the proportion of students taking courses focusing on international issues, involvement in international research and outreach programs, participation in study abroad, and faculty sharing international issues and/or case studies in classroom teaching and discussions, it can be concluded that the extent of internationalization of curricula in the CANR is not very high.

Students were generally satisfied with the services and assistance they had received in the college. There is a need to increase diversity among study abroad participants. Students felt that there was inadequate communication between the college and students.

With regard to development of employable skills, participants developed a high level of technical skills and competencies in their majors. Involvement in student clubs, extracurricular activities, group projects, and laboratory works were instrumental in developing various skill sets. Not many participants were confident of their business and leadership skills. Some of the major factors that hindered the development of skills set were: problems in course registration, more research-focused courses, fast paced teaching, and lack of adequate hardware and software in laboratories.

Based on the conclusions drawn from this study, the following recommendations are made:

1. It is recommended that the CANR make efforts to recruit students from ethnic minorities, such as African-American, Asian-American, Native American, Hispanic, etc.. The target population for recruitment should be high school and community college graduates. Since the 4-H/FFA background was a very important factor for deciding the CANR major for respondents who were members of 4-H and FFA while in high school, it is important that Recruitment Officers identify that population and facilitate their college selection process.

Recruiting Officers should work with parents and the alumni network to market
 CANR programs. Since prospective students prefer digital information, the CANR
 should regularly update the college website and make it more useful and interactive.
 However, distribution of printed materials (college brochures) remains important.

3. CANR students need counseling about time use. Senior level students may be used as mentors for their junior colleagues on how to best manage time in various activities. Academic advising or counseling could focus more on time management, particularly for White males freshman from urban backgrounds.

4. Academic advisors should encourage students to participate in study abroad programs. The CANR should promote diversity among study abroad participants.

5. Faculty members should be encouraged to introduce more international content into classroom teaching and discussions.

6. The CANR should communicate more frequently with students and make information about the services and assistance it offers available digitally through the college website.

7. The CANR should develop policy to promote diversity among study abroad participants, and one way to do this is to encourage the participation of non-traditional students.

8. Faculty should invite more outside speakers from industry and other potential employer organizations for classroom presentations.

9. Promote student clubs and extracurricular activities to develop various transferable skills set such as leadership skills, communication skills, and interpersonal skills.

10. Faculty should balance research and industry application in their teaching.

11. The college should upgrade teaching equipment with the latest hardware and software.

Recommendations for future research

As an extension of this study, the following studies should be conducted in the future.

- i) CANR alumni assessment to determine the usefulness of the undergraduate educational experience in the workplace. It would be helpful to revise and/or upgrade curricula within the CANR major.
- ii) Employer assessment to determine the level of career preparation of CANR graduates and develop a list of core competencies required for new careers. This will also allow employers to get involved in CANR curriculum development process.
- iii) The college should conduct further research on usefulness and relevancy of the study abroad program with regard to students' academic majors. There are concerns about the relevancy and effectiveness of the CANR study abroad program. A

comprehensive study could be useful to develop meaningful international experience in the CANR majors. This study may include perceptions of faculty members about internationalization of the CANR program.

iv) A comparative study of college administrators' and employers' perceptions about important employable skills required in agriculture college graduates.

APPENDICES

Appendix A. Current Student Survey Instrument

Part A. Academic Information

- 1) What is your current academic status?
 - O Freshman
 - O Sophomore
 - O Junior
 - O Senior

2) What is your primary major in CANR?

- O ANR No-Preference
- O Agribusiness Management
- O Agriscience
- O Animal Science
- O ANR Communications
- O Biosystems Engineering
- O Construction Management
- O Crop and Soil Science
- O Dietetics
- O Entomology
- O Environmental Economics and Policy
- O Environmental Soil Science
- O Environmental Studies and Applications
- O Fisheries and Wildlife
- O Food Industry Management
- O Food Science
- O Forestry
- O Horticulture
- O Interior Design
- O Landscape Architecture
- O Packaging
- O Park Recreation and Tourism Resources
- O Plant Pathology
- O Technology Systems Management
- 3) Are you pursuing a dual major?
 - O Yes
 - O No
- 4) Please specify your second major.

- 5) Are you pursuing a second degree?
 - O Yes
 - O No
- 6) Please specify your second degree.

7) How did you first enter the College of Agriculture and Natural Resources?

- O Entered from high school
- O Transferred from community college
- O Transferred from other college or university
- O Transferred from MSU's Institute of Agricultural Technology
- O Transferred from another MSU program
- 8) How did you learn about the college majors in CANR? (Please check all that apply.)
 - □ Family
 - \Box Friends
 - □ University Undergraduate Division (UUD)
 - \Box College website
 - \Box College brochure
 - \Box High school career day
 - □ High school counselor or counseling program
 - □ Campus visit
 - □ Other

If you selected other, please specify

	Not	Somewhat	Very	Extremely
	Important	Important	Important	Important
Reputation of MSU College of				
Agriculture and Natural Resources				
Recommendation of				
friend/alumni/family				
Academic program/curriculum				
Clubs and extra-curricular options				
Personal/family reasons				
Faculty member contact				
FFA/4-H background				
Academic advising				
Credit evaluations/transfer of credits				
Opportunity for internship				
Opportunity for service learning				
Opportunity for study abroad				
Opportunity to get involved in research				
Ineligible for preferred major at MSU				
(e.g., business program, engineering				
program)				
Scholarship/financial aid				
Class size				

9) How important was each of the following factors in your decision to enter your current CANR major? (*Please check one button for each factor.*)

Part B. Assessment of Major Courses, Faculty, and Academic Advising

10) Please indicate your level of agreement or disagreement with the following statements using the scale below:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Most required courses are offered every year.					
Courses are scheduled at convenient times.					
Courses are taught by experienced departmental faculty.					
Departmental faculty are accessible outside of class.					
Departmental faculty are approachable.					

11) Academic Advising

Please indicate your level of agreement or disagreement with the following statements using the scale below:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My major advisor is easily accessible.					
My major advisor gives me accurate information about degree requirements.					
My major advisor helps me with academic problems.					
My major advisor refers me to helpful resources when I need them.					
My major advisor provides timely information on internship opportunities.					
My major advisor encourages me to participate in internships.					
My major advisor encourages me to participate in study abroad.					
My major advisor encourages me to participate in volunteer programs.					
My major advisor shares information on career opportunities.					
Overall, I am satisfied with the academic advising services I have received.					

Internationalization of Curriculum

Please answer the following questions pertaining to internationalization of the CANR program.

12) Have you taken a course at MSU focusing on international issues?

- O Yes
- O No

13) Do you plan to take a course at MSU focusing on international issues?

- O Yes
- O No

14) Have you participated in the Study Abroad Program while a student at MSU?

- O Yes
- O No

15) Do you plan to participate in a Study Abroad while a student at MSU?

- O Yes
- O No

16) How frequently are international issues and/or case studies shared by CANR faculty in your major courses?

- O Not at all
- O Rarely
- O Occasionally
- O Frequently
- O Regularly

17) Are you involved in an international research/outreach project?

- O Yes
- O No

Part C. Time Management

18) About how many hours do you spend in a typical 7-day week doing each of the following activities?

a) Preparing for class (e.g., studying, reading, writing, doing homework or lab work, analyzing	hrs
data, researching, and other academic activities)	
b) Working for pay on-campus	hrs
c) Working for pay off-campus	hrs
d) Participating in co-curricular activities	
(e.g., organizations, campus publications,	hrs
student government, social fraternity or sorority,	
intercollegiate or intramural sports)	
e) Relaxing and socializing	hrs
(e.g., watching TV, exercising, partying)	
f) Providing care for dependents living with you	hrs
(e.g., parents, children, spouse)	
g) Commuting to class (e.g., driving, walking)	hrs
19) Information about credit hours enrolled:	
For how many credit hours are you enrolled this semester?	credits
For how many credit hours do you usually enroll in a	credits
TO HOW Many creat nous ab you usually childle in a	·····

For how many credit hours do you usually enroll in acre semester?

Part D. Demographic Information

- 20) What is your gender?
 - O Male
 - O Female
- 21) What is your race/ethnicity?
 - O White
 - O Hispanic
 - O African-American
 - O Asian-American
 - O Native American
 - O Other
- 22) Where did you reside before coming to MSU?
 - O In a rural area, on a farm
 - O In a rural area, but not on a farm
 - O In a suburban community
 - O In an urban community
- 23) Which category best describes your residency status?
 - O In-state student
 - O Out-of-state student
 - O International student
- 24) What is your age? years
- 25) Did you participate in 4-H or FFA while in high school?
 - O Yes
 - O No
- 26) In which club(s) did you participate?
 - O 4-H
 - O FFA
 - O Both
- 27) Were you a member of the National Honor Society in high school?
 - O Yes
 - O No

Part E. Additional Comments

28) What do you think are the strengths of the undergraduate program in your primary major? *Please describe*.

29) What do you think are the weaknesses of the undergraduate program in your primary major? *Please describe*.

30) If you were to recommend one thing to enhance undergraduate education in your primary major, what would that be? *Please describe*.

Thank you for participating in this survey.

Appendix B. Senior Exit Survey Instrument

Part A. Academic Information

1) What was your primary major in CANR? (*Please check one*)

- O Agribusiness Management
- O Agriscience
- O Animal Science
- O ANR Communication
- O Biosystems Engineering
- O Construction Management
- O Crop and Soil Science
- O Dietetics
- O Entomology
- O Environmental Economics and Policy
- O Environmental Soil Science
- O Environmental Studies and Applications
- O Fisheries and Wildlife
- O Food Industry Management
- O Food Science
- O Forestry
- O Horticulture
- O Interior Design
- O Landscape Architecture
- O Packaging
- O Park, Recreation and Tourism Resources
- O Plant Pathology
- O Technology Systems Management
- 2) Did you pursue a dual major?
 - O Yes
 - O No
- 3) If you pursued a dual major, please specify your second major:
- 4) Did you pursue a second degree?
 - O Yes
 - O No
- 5) If you pursued a second degree, please specify your second degree:

Part B. Assessment of College, Department and Academic Major

6) College Services-provided by staff in 121 Agriculture Hall, such as Associate Deans, Student Affairs, Study Abroad, and Career Services professionals.

Please indicate your level of agreement or disagreement on the following statements using the scale below:

	Strongly	Disagree	Neither	Agree	Strongly
	Disagree		Disagree nor		Agree
			Agree		
The staff provided timely information on academic matters that was helpful in making an informed decision about my major.					
The career advising and information provided by the College was useful.					
The College sponsored quality study abroad experiences for students.					

7) Departmental services—provided by staff in in the department of your major, such as, academic advisor, department chair, and secretaries.

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
Departmental staff provided timely					
information on academic matters that was					
helpful in making an informed decision					
about my major.					
In my major department, it was easy to get					
to know at least one faculty member well					
enough so that I could ask for such things					
as letters of recommendation.					
In my major courses, faculty expectations					
for my performance were clearly defined					
at the beginning of the course.					
I had no difficulty in obtaining					
information on internship opportunities.					
My major/department encouraged me to					
participate in study abroad.					
My major/department encouraged me to					
participate in internships.					
My major/department encouraged me to					
participate in volunteer programs or					
unpaid internships.					
Sufficient opportunities existed to become					
involved in student organizations relevant					
to my career/professional interests.					
In my major, departmental faculty were					
accessible to discuss undergraduate					
research or extension opportunities.					
I had no difficulty in identifying my					
departmental/major advisor.					
My major advisor was easily accessible.					
My major advisor helped me decide the					
courses to pursue.					
My major advisor/Career Field Consultant					
offered suggestions to prepare my resume.					
My major advisor/Career Field Consultant					
gave tips on interviewing skills.					
My major advisor/Career Field Consultant					
helped me find my first professional job					
after graduation.					

8) Academic Advising—classes and services provided by faculty.

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
I received quality faculty support in my major.					
I am satisfied with the academic quality of classes in my major.					
I am satisfied with the quality of my preparation for a career.					
I am satisfied with the quality of my preparation for entering graduate studies.					

9) Skills Development –using the following scale, indicate the degree to which your education in your major contributed to the development of each of the following skills.
(1= Made no contribution, 2= Made a moderate contribution, 3= Made some contribution, 4= Made a considerable contribution, 5= Contributed a great deal)

	1	2	3	4	5
Knowledge applicable to your anticipated career path.					
Skills required in your anticipated career.					
Critical thinking and problem solving skills.					
Written communication skills (i.e., papers, reports, newsarticles, etc.).					
Verbal communication skills (i.e., class presentation, group					
discussions, etc.).					
Teamwork skills.					
Research skills.					
Computer technology and database research skills.					
Diversity (i.e., working with others from diverse backgrounds).					
Leadership and interpersonal skills (i.e., club management, understanding others, conflict management, etc.).					

Part C. Demographic Information

- 10) What is your gender?
 - O Male
 - O Female
- 11) What is your race/ethnicity?
 - O White
 - O Hispanic
 - O African-American
 - O Asian-American
 - O Native American
 - O Other
- 12) Where did you reside before coming to MSU?
 - O In a rural area, on a farm
 - O In a rural area, but not on a farm
 - O In a suburban community
 - O In an urban community
- 13) Which category best describes your residency status?
 - O In-state student
 - O Out-of-state student
 - O International student
- 14) What is your age? years

Part D. Additional Comments

15) What do you think are the strengths of the undergraduate program in your primary major? *Please describe*.

16) What do you think are the weaknesses of the undergraduate program in your primary major? *Please describe*.

17) If you were to recommend one thing to enhance undergraduate education in your primary major, what would that be? *Please describe*.

Thank you for participating in this survey.

Appendix C. Sample Invitation Letter to Focus Group Participants

Dear {Last Name}:

Your academic advisor or undergraduate coordinator has recommended you as a potential focus group session participant.

A focus group session has been scheduled for **Tuesday April 1, 2008 at 5:00 PM in Room 338 of the Natural Resources Building** to solicit opinions about the programs and services provided by the College of Agriculture and Natural Resources (CANR) at MSU. This focus group session will last for about an hour and half, and the discussion contained therein will remain completely confidential. No names will be reported with anything said by the participants. As a participant, your opinions and inputs will help CANR improve its programs and services.

If you are willing to participate, please reply to this e-mail by **Monday**, **March 31, 2008**. The first ten respondents will be selected to participate in the focus group session, and after doing so, each of them will receive **\$20.00 in cash** to thank them for participating.

If you have any questions or concerns about this focus group, please feel free to contact me at (517) 432-0296 or Dr. Murari Suvedi, Professor in CARRS at (517) 432-0265.

I hope you will be able to participate in this focus group session.

Sincerely, Krishna Shrestha PhD Student Department of CARRS Michigan State University

Appendix D. Script for Conducting the Focus Group Interview

Good evening and welcome! I am Krishna Shrestha, a PhD student in the Department of Community, Agriculture, Recreation, and Resource Studies at Michigan State University. I would like to thank you for accepting my invitation to participate in this focus group, I will be the moderator for tonight's session. Helping me is Mr. Dan Hudson, Ph. D. student in the Department of Crop and Soil Science, Michigan State University.

The purpose of today's session is to learn more about your experiences and perceptions about undergraduate education in your major in the College of Agriculture and Natural Resources (CANR). Specifically we would like to hear more about your perceptions of college services, departmental services, academic advising, and the various skills that you have developed through academic programs in your major. Please feel free to share your thoughts and opinions, which will be very valuable for the future improvement of the undergraduate programs in CANR.

Let me share some ground rules for this session. There are no right or wrong answers. Please feel free to share your views, opinions, and thoughts even if they differ from your colleagues' ideas, but let us listen to others' views carefully and with respect. Please keep in mind that we are as equally interested to hear about negative comments as positive comments, with regard to your college experiences. We will be taking notes and also audio recording this session, because we don't want to miss any important piece of information that emerges from our discussions. Please let one person speak at a time so that we will be able to later transcribe the audio tapes. We will be on a first name basis during this session, but let me assure you that your responses will be kept completely confidential and your name will not appear in any reports. This session will probably last for about an hour and half. We will take a short coffee break after 45 minutes, and you will have the chance to enjoy the taste of some Nepali food at the end of the session.

We've placed name cards on the table to help us remember each other's names. Let's begin with each of you sharing a little bit about yourselves. Please tell us your name,

major, and the reason why you are interested in your current major. Let's start from the right corner and go around the table.

Now let's start the session. Please think back over your academic experiences during the past couple of years in CANR.

The Office of the Dean, located in 121 Agriculture Hall, provides services about academic matters such as study abroad and career advising. Please recall your memories about the help and services, if any, that you have received from this office.

- What has been your experience with services or assistance provided by the CANR Dean's office? Please describe them.
- 2. How could the Dean's office improve its services and assistance to better meet the needs of CANR students?

Academic departments or schools in CANR provide various information and services, such as academic advising, internships, study abroad, and career services to make your academic program professionally rewarding and successful. Please reflect on the services that your academic department or school has provided to you, and tell us about your experiences.

- 3. What types of academic support and services are available to students in your department or school?
- 4. What is your assessment of the quality of these academic support services offered by your department or school?
- 5. How could your academic department or school improve the academic support services offered to students?

CANR strives to prepare its students for gainful employment. In addition to technical subject matter, skills such as critical thinking, communication skills, research skills, and leadership skills are considered important by employers.

6. How have the educational experiences you've received in your CANR major contributed to the development of these skills? Please describe.

- 7. What can be done to develop these employability skills in students with your same academic major?
- 8. Finally, do you have any specific comments or suggestions to improve the academic programs or services within CANR, including within your department or school?

Thank you for your active participation in the discussion. Please enjoy the food and have safe trip back home. Thanks.

Year	CANR Enrollment	% Change	% Change
1994	2,274	0.0	0.0
1995	2,545	11.9	11.9
1996	2,622	3.0	3.0
1997	2,629	0.3	0.3
1998	2,600	-1.1	-1.1
1999	2,532	-2.6	-2.6
2000	2,474	-2.3	-2.3
2001	2,385	-3.6	-3.6
2002	2,238	-6.2	-6.2
2003	2,064	-7.8	-7.8
2004	2,121	2.8	2.8
2005	2,910	37.2	-0.5
2006	2,941	1.1	
2007	3,001	2.0	
2008	2,923	-2.6	
Averag	e change	2.3	

Appendix E. Trend of Fall Enrollment in the College of Agriculture and Natural Resources at Michigan State University (Fall 1994-Fall 2008)

Data Source: Office of the Registrar, Michigan State University (http://www.reg.msu.edu/reportserver?/ROReports/CE-StuMjrUN&term_seq_id=1084)

Author/s (Year)	Influencing Factors	Sources of Information
	• Institutional characteristics	Campus visit
	• University academic reputation	Printed university
	• Preparation for employment	publications
	• Opportunity after graduation	◆ Letter/info. from
	• Faculty quality & reputation	university
	• Ouality of facilities	• University website
	• Prestige of the university	
	• Degree program characteristics	
Robinson et al. (2007)	• Career opportunities	
·······	• Ouality and reputation of the college	
	• Ouality and reputation of the faculty	
	Ouality of facilities	
	♦ Individuals	
	• Parent or guardian	
	Relative attending the	
	college/university	
	• Friend in college	
	Career opportunities	Campus visits
	♦ Love of animals	Contacts with faculty
	• Reputation of faculty	◆ Brochures
	♦ Scientific nature	Website
	♦ Financial aid	 Interaction with
	 Environmental concern 	current students
Peiter et al. (2004)	◆ Parent/guardian	◆ Letters from staff and
`` ,	 University agricultural program 	Phone calls from
	representative	university
	• Friend of the prospective student	representatives
	♦ High school agriculture teacher/	
	counselor	
	 Brother or sister of student 	
	 Institutional characteristics 	Degree program
	• Academic reputation of the	information on website
	university	• University information
	 Opportunity after graduation 	on website
	• Prestige of the university	• College information on
	 Preparation for employment 	website
	 Quality of facilities 	 Printed materials
	 Faculty quality & reputation 	 Campus visit
Rocca and Washburn (2005)	 Variety of majors offered 	
Rocca and washburn (2005)	• Cost	
	 Degree program characteristics 	
	 Career opportunities 	
	• Quality and reputation of courses	
	• Quality and reputation of the faculty	
	 Quality of facilities 	
	 Individuals 	
	 Parent or guardian 	
	• Friend in college	

Appendix F. Literature Review: Influential Factors and Sources of Information for Choosing Agriculture College Major

Author/s (Year)	Influencing Factors	Sources of Information
Washburn et al. (2002)	Degree program characteristics Career opportunities Quality and reputation of courses Quality and reputation of courses Quality of facilities Quality and reputation of faculty Institutional characteristics Academic reputation of the university Preparation for employment Opportunities after graduation Quality and reputation of the faculty	Printed university publications Campus visits Letter/info. from university admission representative University website Personal conversation with university admission representative
Cole and Thompson (1999)		 Printed materials Campus visit Parents or other family members College friends

Appendix F. Literature Review: Influential Factors and Sources of Information for Choosing Agriculture College Major (continued)

Author/s (Year)	Influencing Factors
	 Prior exposure to major
	 Personal work experience
	 Related hobbies
	 High School course
	 Related clubs and organizations
	 Relatives in similar fields
	People of influence
Williams et al. (2008)	Parent or guardian
	Professional in similar field
	Personal role model
	High School Agriscience teacher
	College/Departmental influence
	Friendly college atmosphere
	Teaching reputation of college and department
	Paculty's intendiness Departmental clubs and activities
	Influential Individuals
	Alumni and current students
Segler-Conrad et al. (2004)	High School Agrissiance teacher
	Siblings and parents
	Instructor
	Influential forms of communication
	Brochures
	Conversation with faculty
	Conversation with admissions representative at high school
	E-mail/letter from faculty member
	 Letter/info, from admission representative
	Working outdoors
	 Working with animals
	 Prior experience in agriculture
Wildman and Torres (2002)	 Friendliness of departmental faculty
	 Overall friendly atmosphere in the college of agriculture
	 Job considerations
	 Personal role models and professionals employed in agriculture
	 Personal decision
	Parents
Lynch (2001)	 Former teachers and
	 College faculty members
	 Financial assistance
	 Parents
Sivapirunthep (2000)	 College teachers/advisors
	 Preparation for a career
	 Parents
	 Employment
Powers (2000)	 Quality of institution
	 Quality of teachers
	 Cost of school
	Geographic location

Appendix G. Literature Review: Influential Factors for Choosing Agriculture College Major

Eastorn	Particip	ation in 4	-H/FFA
Factors	Mean*	SD	n
Academic program/curriculum better suited to your interests	3.35	(0.75)	678
FFA/4-H background	2.86	(1.05)	678
Reputation of CANR at MSU	2.85	(0.91)	681
Recommendation of friend/alumni/family	2.58	(0.96)	678
Scholarship/financial aid	2.47	(1.10)	449
Academic advising	2.40	(0.97)	680
Personal/family reasons	2.39	(0.99)	678
Clubs and extra-curricular options	2.37	(0.94)	677
Opportunity for internship	2.37	(0.99)	679
Faculty member contact	2.16	(1.01)	678
Opportunity for study abroad	2.15	(1.05)	677
Opportunity to get involved in research	2.14	(1.00)	675
Class size	2.13	(0.98)	449
Credit evaluations/transfer of credits	2.07	(1.03)	679
Opportunity for service learning	2.00	(0.91)	680
Ineligible for preferred major at MSU	1.37	(0.77)	678

Appendix H. Ranking of Factors Deciding the CANR Major for FFA/4-H Respondents

* Mean is computed based on 1=Not Important, 2=Somewhat Important, 3=Very Important, and 4=Extremely Important

Appendix I. Results of Post Hoc (Tukey) Test for Multiple Comparisons by Academic Levels of Respondents a) Working for pay on-campus

(I)	(J)	Mean			95% Confid	ence Interval
Academic Status	Academic Status	Difference . (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	Sophomore	.421	.663	.921	-1.29	2.13
Freshman	Junior	-1.128	.623	.268	-2.73	.47
	Senior	-2.303*	.681	.004	-4.05	55
	Freshman	421	.663	.921	-2.13	1.29
Sophomore	Junior	-1.549*	.480	.007	-2.78	31
	Senior	-2.723*	.554	.000	-4.15	-1.30
	Freshman	1.128	.623	.268	47	2.73
Junior	Sophomore	1.549*	.480	.007	.31	2.78
	Senior	-1.175	.505	.092	-2.47	.12
	Freshman	2.303*	.681	.004	.55	4.05
Senior	Sophomore	2.723*	.554	.000	1.30	4.15
	Junior	1.175	.505	.092	12	2.47

* The mean difference is significant at the 0.05 level.

(I)	(J)	Mean			95% Confid	ence Interval
Academic Status	Academic Status	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	Sophomore	-1.835	1.162	.391	-4.83	1.16
Freshman	Junior	-3.538*	1.037	.004	-6.21	87
	Senior	-4.241*	1.096	.001	-7.06	-1.42
	Freshman	1.835	1.162	.391	-1.16	4.83
Sophomore	Junior	-1.703	.810	.153	-3.79	.38
	Senior	-2.406*	.885	.034	-4.68	13
	Freshman	3.538*	1.037	.004	.87	6.21
Junior	Sophomore	1.703	.810	.153	38	3.79
	Senior	703	.713	.758	-2.54	1.13
	Freshman	4.241*	1.096	.001	1.42	7.06
Senior	Sophomore	2.406*	.885	.034	.13	4.68
	Junior	.703	.713	.758	-1.13	2.54

b) Working for pay off-campus

* The mean difference is significant at the 0.05 level.

c) Relaxing and socializing

(I)	(J)	Mean			95% Confid	ence Interval
Academic Status	Academic Status	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	Sophomore	.830	.825	.746	-1.29	2.95
Freshman	Junior	2.143*	.766	.027	.17	4.11
	Senior	1.396	.843	.347	77	3.56
	Freshman	830	.825	.746	-2.95	1.29
Sophomore	Junior	1.313	.629	.157	30	2.93
	Senior	.566	.720	.861	-1.29	2.42
	Freshman	-2.143*	.766	.027	-4.11	17
Junior	Sophomore	-1.313	.629	.157	-2.93	.30
	Senior	747	.653	.662	-2.42	.93
	Freshman	-1.396	.843	.347	-3.56	.77
Senior	Sophomore	566	.720	.861	-2.42	1.29
	Junior	.747	.653	.662	93	2.42

* The mean difference is significant at the 0.05 level.

(I)	(J)	Mean			95% Confid	ence Interval
Academic Status	Academic Status	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	Sophomore	1.938	2.933	.912	-5.63	9.51
Freshman	Junior	-1.911	2.649	.888	-8.74	4.92
	Senior	-5.473	2.817	.212	-12.74	1.79
	Freshman	-1.938	2.933	.912	-9.51	5.63
Sophomore	Junior	-3.850	2.124	.269	-9.33	1.63
	Senior	-7.411*	2.330	.009	-13.42	-1.40
	Freshman	1.911	2.649	.888	-4.92	8.74
Junior	Sophomore	3.850	2.124	.269	-1.63	9.33
	Senior	-3.562	1.960	.267	-8.62	1.49
	Freshman	5.473	2.817	.212	-1.79	12.74
Senior	Sophomore	7.411*	2.330	.009	1.40	13.42
	Junior	3.562	1.960	.267	-1.49	8.62

d)	Providing	care	for o	de	pendents
----	-----------	------	-------	----	----------

* The mean difference is significant at the 0.05 level

Activities	n	Mean (SD)	t value	p value
Preparing for class				
Participants	674	14.7 (11.3)	1 1 5 7	0.249
Non-participants	2076	15.3 (11.2)	1.157	0.240
Working for pay on-campus				
Participants	355	13.8 (6.6)	0.804	0 421
Non-participants	816	13.5 (6.6)	0.804	0.421
Working for pay off-campus				
Participants	290	16.4 (10.3)	1 1 2 2	0.262
Non-participants	714	17.1 (9.0)	1.122	0.202
Participating in co-curricular activities				
Participants	533	6.6	1 796	0.074
Non-participants	1453	6.0	1.760	0.074
Relaxing and socializing				
Participants	667	14.2 (11.0)	4 921	0.001***
Non-participants	2048	16.9 (13.3)	4.021	0.001
Providing care for dependents				
Participants	112	10.2 (14.4)	1 102	0 271
Non-participants	290	12.2 (16.6)	1.105	0.271
Commuting to class				
Participants	664	5.9 (3.8)	1 694	0.002
Non-participants	2047	4.9 (4.1)	1.084	0.092

Appendix J. Difference between Participants and Non-Participants of 4-H/FFA for Time Use on Various Activities (hours/week)

*** Significant at 0.001 level

Activities	n	Mean (SD)	t value	p value
Preparing for class				
Members	1101	16.5 (11.9)	1.011	0.070
Non-members	884	15.6 (12.0)	1.811	0.070
Working for pay on-campus				
Members	510	13.0 (6.1)	2 2 2 2	0.02*
Non-members	319	14.1 (7.1)	2.323	0.02
Working for pay off-campus				
Members	373	16.5 (9.1)	0.716	0.474
Non-members	312	17.0 (9.4)	0.710	0.474
Participating in co-curricular activities				
Members	841	6.0 (6.3)	0.609	0.543
Non-members	585	5.8 (6.4)	0.008	0.343
Relaxing and socializing				
Members	1086	16.0 (12.7)	1 1 60	0.242
Non-members	872	16.7 (13.9)	1.109	0.245
Providing care for dependents			-	
Members	136	9.3 (13.6)	1 927	0.067
Non-members	168	12.4 (15.8)	1.857	0.067
Commuting to class				
Members	1085	5.1 (4.4)	0.612	0.540
Non-members	861	5.3 (4.0)	0.012	0.340

Appendix K. Difference between Members and Non-Members of National Honor Society for Time Use on Various Activities (hours/week)

* Significant at 0.05 level

Appendix L. Demographic (Character	istics o	f Current St	tudents							
						Sur	vey Year				
Demographic Characteris	stics	•••	2005		2006		2007		2008		Cotal
		Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)
Academic Status											
Freshman		35	(15.5)	96	(19.2)	64	(12.2)	114	(14.5)	309	(15.2)
Sophomore		75	(33.2)	138	(27.6)	125	(23.8)	181	(23.0)	519	(25.5)
Junior		109	(48.2)	250	(20.0)	207	(39.4)	343	(43.6)	606	(44.6)
Senior		7	(3.1)	16	(3.2)	129	(24.6)	148	(18.8)	300	(14.7)
	Total	226	(100.0)	500	(100.0)	525	(100.0)	786	(100.0)	2037	(100.0)
Gender											
Male		88	(38.9)	139	(28.2)	159	(30.3)	303	(38.5)	689	(33.9)
Female		138	(61.1)	354	(71.8)	366	(69.7)	483	(61.5)	1341	(66.1)
	Total	226	(100.0)	493	(100.0)	525	(100.0)	786	(100.0)	2030	(100.0)
Age											
18 to 24 years		205	(90.3)	468	(94.2)	494	(94.1)	734	(93.7)	1061	(93.6)
25 years and older		22	(6.7)	29	(5.8)	31	(5.9)	49	(6.3)	131	(6.4)
	Total	227	(100.0)	497	(100.0)	525	(100.0)	783	(100.0)	2032	(100.0)
Ethnicity											
White		206	(60.7)	444	(89.3)	460	(88.0)	651	(83.5)	1761	(86.9)
Students of Color		21	(6.3)	53	(10.7)	63	(12.0)	129	(16.5)	266	(13.1)
	Total	227	(100.0)	497	(100.0)	523	(100.0)	780	(100.0)	2027	(100.0)
Residence											
Rural		128	(56.6)	236	(47.7)	229	(43.6)	295	(37.6)	888	(43.7)
Urban		98	(43.4)	259	(52.3)	296	(56.4)	490	(62.4)	1143	(56.3)
	Total	226	(100.0)	495	(100.0)	525	(100.0)	785	(100.0)	2031	(100.0)

Studer
Current
ببه
0
: Characteristics
raphic
Demog
نہ
~
cipu

					Surve	y Year				
Demographic Characteristics	50	005	7	2006	20	07	2008		Toi	al
	Freq.	(%)	Freq.	(%)	Freq. ((%)	Freq. (%	(Freq. ((0)
Residency Status										
In-state	204	(60.3)	459	(92.7)	477 (91.0)	16) 612	(8.	1859 (1.7)
Out-of-state	22	(6.7)	36	(7.3)	47 ((0.6	64 (8.	5)	169 (3.3)
Tota	l 226 ((100.0)	495	(100.0)	524 (100.0)	783 (10	0.0)	2028 ((0.00)
Member of national honor so	ciety									
Yes	123	(54.7)	279	(56.6)	291 (55.7)	426 (54	l.3)) 6111	5.3)
No	102	(45.3)	214	(43.4)	231 (44.3)	358 (45	(2.)	905 (H.7)
Tota	l 225 ((100.0)	493	(100.0)	522 (100.0)	784 (10	0.0)	2024 ((00.0)
Participation in 4H/FFA										
Yes	72 ((31.7)	112	(22.5)	115 ((51.9)	151 (15	.2)	450 (;	2.1)
No	155 ((68.3)	385	(77.5)	410 (78.1)	634 (80	(8)	1584 ((6.71
Tota	l 227 ((100.0)	497	(100.0)	525 (100.0)	785 (10	0.0)	2034 ((0.00)

Appendix L. Demographic Characteristics of Current Students (continued)

Demographic characteristics	n	Mean (SD)	t value	Prob. (0.05)
Gender				
Male	681	3.8 (0.6)	0.731	0.465
Female	1320	3.8 (0.6)		
Age				
Traditional undergraduates (18 yrs. to 24 yrs. Old)	1155	3.9 (0.6)	1.527	0.127
undergraduates (25 yrs. and older)	82	3.8 (0.6)		
Ethnicity				
White	1738	3.8 (0.6)	0.359	0.720
Students of Color	261	3.8 (0.6)		
Residency status				
In-State	1834	3.8 (0.6)	1.243	0.214
Out-of-State and International	165	3.9 (0.6)		
Participation in 4-H/FFA club during high school				
Yes	446	3.8 (0.6)	0.204	0.839
No	1559	3.8 (0.6)		
Member in national honor society during high school				
Yes	1106	3.9 (0.6)	1.980	0.048*
No	889	3.8 (0.6)		

Appendix M. Perceptions about Major Courses and Faculty Help by Selected Demographic Characteristics of Respondents

* Significant at 0.05 level.
| Demographic characteristics | n | Mean (SD) | F value | Prob.
(0.05) |
|-----------------------------|-----|-----------|---------|-----------------|
| Academic status | | | | |
| Freshman | 305 | 3.9 (0.5) | | |
| Sophomore | 508 | 3.8 (0.6) | 1.846 | 0.137 |
| Junior | 898 | 3.8 (0.6) | | |
| Senior | 297 | 3.8 (0.6) | | |
| Residency | | | | |
| Rural community | 875 | 3.8 (0.6) | | ~ ~~~ |
| Suburban community | 913 | 3.8 (0.6) | 0.321 | 0.725 |
| Urban community | 214 | 3.8 (0.6) | | |

Appendix N. Perceptions about Major Courses and Faculty Help by Academic Status and Residency of Respondents

Demographic characteristics	n	Mean (SD)	t value	Prob. (0.05)
Gender				
Male	677	3.9 (0.7)	0.983	0.326
Female	1293	3.9 (0.7)		
Age				
Traditional undergraduates (18 yrs. to 24 yrs. Old)	1138	3.9 (0.7)	2.094	0.036*
Non-Traditional undergraduates (25 yrs. and older)	80	4.1 (0.7)		
Ethnicity				
White	1712	3.9 (0.7)	0.814	0.416
Students of Color	255	3.9 (0.7)		
Residency status				
In-State	1803	3.9 (0.7)	0.791	0.429
Out-of-State and International	165	3.9 (0.7)		
Participation in 4-H/FFA club during high school				
Yes	435	3.8 (0.7)	3.484	0.001***
No	1539	3.9 (0.7)		
Member in national honor society during high school				
Yes	1087	3.9 (0.7)	0.864	0.388
No	877	3.9 (0.7)		

Appendix O. Perceptions about Academic Advising by Selected Demographic Characteristics of Respondents

* Significant at 0.05 level. *** Significant at 0.001 level.

Demographic characteristics	n	Mean (SD)	F value	df	Prob. (0.05)
Academic status					
Freshman	300	3.9 (0.7)			
Sophomore	506	3.9 (0.7)	0.519	3, 1972	0.669
Junior	880	3.9 (0.7)			
Senior	290	3.9 (0.7)			
Residency					
Rural community	870	3.9 (0.9)	0.445	0 10 (0	0.640
Suburban community	897	3.9 (0.9)	0.447	2, 1968	0.640
Urban community	204	3.9 (0.9)			

Appendix P. Perceptions about Academic Advising by Selected Demographic Characteristics of Respondents (continued)

Demosratio	Chamadaniatian		Course ta	aken with	Total	χ ²
Demographic	Characteristics	-	Yes	No	Totai	Value
	Freshman		73	235	308	
	Sophomore		169	349	518	
Academic Status	Junior		405	502	90 7	57.592***
	Senior		138	162	300	
		Total	785	1248	2033	
	Male		293	395	688	
Gender	Female		490	849	1339	6.885**
		Total	783	1244	2027	
	Traditional		735	1163	1898	
Age	Non-traditional		48	83	131	0.225
		Total	783	1246	2029	
	White		676	1082	1758	
Ethnicity	Students of Co	lor	104	162	266	0.041
		Total	780	1244	2024	
	Rural		344	542	886	
Residence	Urban		440	702	1142	0.019
		Total	784	1244	2028	
	In-state		720	1136	1856	
Residency Status	Out-of-state		61	108	169	0.476
		Total	781	1244	2025	
	Participant		156	293	449	
Participation in	Non-participant		629	953	1582	3.711*
		Total	785	1246	2031	
	Member		413	704	1117	
Member of National	Non-member		369	535	904	3.113
Honor Society		Total	782	1239	2021	

Appendix Q. Chi-square Test for Association between Selected Demographic Characteristics and Courses taken at MSU Focusing on International Issues

* Pearson Chi-square significant at 0.05 Alpha level.
** Pearson Chi-square significant at 0.01 Alpha level.

*** Pearson Chi-square significant at 0.001 Alpha level.

			Academic St	atus		Total	χ ²
		Freshman	Sophomore	Junior	Senior	Total	Value
	Not at all	26	33	34	19	112	
How frequently are international issues	Rarely	72	99	183	70	424	
and/or case studies shared by CANR	Occasionally	144	265	429	126	964	21 567**
faculty in classroom?	Frequently	56	93	199	63	411	31.307
	Regularly	9	19	62	21	111	
	Total	307	509	907	299	2022	

Appendix R. Chi-square Test for Association between Respondents' Academic Status and Frequency of International Issues and/or Case Studies Shared by Faculty Member in the Classrooms

** Pearson Chi-square significant at 0.01 Alpha level

Demographic	Charrenterinting		Involvem	ent in intl.	Tatal	χ ²
Demographic	Characteristics	-	Yes	No	I OTAI	Value
	Freshman		13	292	305	
	Sophomore		28	478	506	
Academic Status	Junior		51	846	8 97	1.724
	Senior		20	279	299	
		Total	112	1895	2007	
	Male		35	647	682	
Gender	Female		76	1244	1320	0.336
		Total	111	1891	2002	
	Traditional		98	1776	1874	
Age	Non-traditional		13	116	129	5.419*
		Total	111	1892	2003	
	White		85	1651	1736	
Ethnicity	Students of Co	lor	26	236	262	10.966***
		Total	111	1887	1998	
	Rural		41	832	873	
Residence	Urban		70	1059	1129	2.126
		Total	111	1891	2002	
• • • • • • • • • • • • • • • • • • •	In-state		97	1737	1834	
Residency Status	Out-of-state		14	152	166	2.872
		Total	111	1889	2000	
	Participant		21	421	442	
Participation in AH/FEA	Non-participant		90	1473	1563	0.668
		Total	111	1894	2005	
	Member		60	1038	1098	
Member of National	Non-member		50	8 47	8 97	0.011
Honor Society		Total	110	1885	1995	

Appendix S. Chi-square Test for Association between Selected Demographic Characteristics and Involvement in International Research/Outreach Project

* Pearson Chi-square significant at 0.05 Alpha level.
*** Pearson Chi-square significant at 0.001 Alpha level.

.

			Particip	pation in		γ^2
Demographic	Characteristics	-	Yes	No	Total	Value
	Freshman		14	294	308	
	Sophomore		49	467	516	
Academic Status	Junior		122	785	907	27.775***
	Senior		50	250	300	
		Total	235	1796	2031	
	Male		69	166	235	
Gender	Female		617	1172	1789	2.437
		Total	686	1338	2024	
	Traditional		220	1675	1895	
Age	Non-traditional		15	116	131	0.003
		Total	235	1791	2026	
• · · · · · · · · · · · · · · · · · · ·	White		191	1565	1756	
Ethnicity	Students of Co	lor	42	223	265	5.581*
		Total	233	1788	2021	
	Rural		87	798	885	
Residence	Urban		148	992	1140	4.825*
		Total	235	1790	2025	
	In-state		214	1640	1854	
Residency Status	Out-of-state		20	148	168	0.020
		Total	234	1788	2022	
	Participant		46	400	446	
Participation in	Non-participant		189	1393	1582	0.906
		Total	235	1793	2028	
	Member		139	976	1115	
Member of National	Non-member		95	808	903	1.843
Honor Society		Total	234	1784	2018	

Appendix T. Chi-square Test for Association between Selected Demographic Characteristics and Participation in Study Abroad

* Pearson Chi-square significant at 0.05 Alpha level.
*** Pearson Chi-square significant at 0.001 Alpha level.

				Recommendation	IS			
tments/Schools	Faculty, Teaching & Advising	Course Curricula	Course Offer	Course Requirements, & Organization	Hands-on	Communication	Others	Total Comments
Ice	26	42	36	10	73	12	10	209
e and Human	39	22	25	25	62	6	7	189
sign and Construction	48	15	17	30	61	6	3	180
	50	10	16	10	29	2	9	123
	14	30	17	6	26	12	8	116
nd Res. Economics	20	16	13	17	21	6	9	102
i Wildlife	6	17	16	9	24	3	4	79
	4	18	10	5	14	4	5	60
il Science	4	6	4	3	13	2	0	35
	0	2	2	1	8	4	4	21
	1	1	9	0	0	2 I 4	0	6
and Agri. Engineering	1	0	1	0	1	0	0	3
Total	216	182	163	116	332	64	53	1,126
% of Total	19.2%	16.2%	14.5%	10.3%	29.5%	5.7%	4.7%	100.0

Appendix U. Recommendations to Improve CANR Programs by Departments/Schools

Author(s)	Academic Major(s)	Important Employable Skills/Characteristics
e		Work ethic
		 Problem solving
	A 1 1 10 .	Computer skills
Snyder (2008)	Agricultural Systems	 Mathematical skills
	Management	 Willingness to learn new concepts
		 Analytical skills
		 Financial skills
		Character Traits and Professional Qualities
		 Leadership and Organizational Skills
Jogan and Herring	Equine program	 Hands-on Abilities
(2007)		Communication
		 Interpersonal Skills
		Self-motivation
		Responsible
	Landarana	 Verbal communication
Berle (2007)	Landscape	 Ethical/professional
	norticulture	 Able to learn new tasks
		• Team work
		• Able to apply knowledge/skills in workplace
		Work ethic
		 Communication skills
Penn State College of		 Team skills
Agricultural Sciences	All agriculture	 Problem solving skills
(2004)	majors	 Business skills
		Computer skills
		 Writing skills
		Leadership ability
Barr and McNailly		 Communication ability
(2002)	Marketing	 Project initiation and completion ability,
(2002)		interpersonal skills
		 Teamwork ability
		 Knowledge of Subject Matter
		 Knowledge of New Technology
		 Verbal Communication Skills
		 Leadership Skills
Cole and Thompson	All agriculture	People Skills
(2002)	majors	Self-Starter
		 Computer Skills
		Work Ethic
		 Reliability, and
		Inclusive Decision Making

Appendix V. Literature Review: Employers' Ratings of Important Employable Skills/Characteristics

Author(s)	Academic Major(s)	Important Employable Skills/Characteristics
Graham (2001)	Agricultural & Extension Education	 Character traits Honesty, dependability, and integrity Interpersonal Leadership, teamwork, and dedication Communication Listening, verbalizing, understanding instruction Computer skills Word processing, spreadsheet, database Technical competencies Agricultural sciences, mathematics, biological sciences
Andelt et al. (1997)	All agriculture majors	 Communication skills Listening, Speaking Leadership skills Problem solving, Team work Computer skills Quantitative, Information management
Terry and Bailey- Evans (1995)	Agricultural Communication	 Writing (grammar) Computer skills Desktop Publishing, Word Processing, Graphical Design, Networking and Management
Baker and MacLaughlin (1995)	Horticulture	 Interpersonal skills Marketing skills Business skills Computer skills General education skills
Bruening and Scanlon (1995)	Agribusiness	 Business skills Human relations, Organizational, Managerial, and Analytical thinking Communication skills
Litzenberg and Schneider (1988)	Agribusiness	 Interpersonal characteristics Communication skills Business and economic skills Technical skills Computer, quantitative and management information
Broder and Houston (1986)	All agriculture majors	 Communication skills Leadership skills Work experience Grade point average (GPA) Farm background Letter of reference

Appendix V. Literature Review: Employers' Ratings of Important Employable Skills/Characteristics (continued)

Author(s)	Academic Major(s)	Important Employable Skills/Characteristics
Rutherford et al. (2007)	Agricultural Education	 Interpersonal skills: decision making, organizational, time management, initiative/self-motivation, and problem solving Character skills: dependability, honesty, integrity, work ethic, competence, and confidence as extremely important. Communication skills: understand/follow instructions, listening, and verbal expression Computer skills, internet use and word processing
Garton and Robinson (2006)	Agricultural Education	 Interpersonal (team work) Communication Planning and completing projects Analysis and problem solving Leadership skills
Zekeri (2004)	All agriculture majors	 Communication Skills (Oral and Written) Problem Solving Techniques Motivation and Managing Others Goals Setting (Personal and Organizational)
Shah et al. (2004)	Environmental Science and Heritage Conservation	 Communication (oral and written) Teamwork, Personal organization Self-motivation
Opara (2003)	Agricultural Engineering	 Technical skills (machinery management) Analytical and data management Communication skills Creativity Lateral thinking Ability to work unsupervised Being open to change and up-to-date with technology Ability to improvise with limited resources Wide knowledge of the agricultural sciences
Gamon and Chestnut (1995)	All agriculture majors	 Communication skills Computer expertise Internships (work experience)
Barkley (1991)	All agriculture majors	 Communication skills People skills (managing people and time)
Wheelock and Zekeri (1988)	All agriculture majors	 Communication skills Analytical skills Organizational skills Managerial skills

Appendix W. Literature Review: Alumni Ratings of Important Employable Skills/Characteristics

				:		
			Academi	c Year		
Demographic characteristics	AY 2003-04	AY 2004-05	AY 2005-06	AY 2006-07	AY 2007-08	Tatel
	(spring 04 0my) f (%)	(rail 04-spring 02) f (%)	(raii uo-spring uo) f (%)	(rail 00-spring 0/) f (%)	frair U/-spring uo) f (%)	f (%)
Gender						
Male	96 (53.0)	83 (41.7)	68 (37.0)	53 (31.2)	128 (38.6)	428 (40.2)
Female	85 (47.0)	116 (58.3)	116 (63.0)	117 (68.8)	204 (61.4)	638 (59.8)
Total	181 (100.0)	199 (100.0)	184 (100.0)	170 (100.0)	332 (100.0)	1066 (100.0)
Race/Ethnicity						
White	169 (93.4)	79 (89.8)	170 (92.4)	155 (91.2)	292 (88.0)	865 (90.6)
Hispanic	2 (1.1)	0 (0.0)	1 (0.5)	4 (2.4)	3 (0.9)	10 (1.0)
African- American	4 (2.2)	6 (6.8)	3 (1.6)	4 (2.4)	12 (3.6)	29 (3.0)
Asian-American	3 (1.7)	1 (1.1)	4 (2.2)	5 (2.9)	13 (3.9)	26 (2.7)
Native	0 (0.0)	0 (0.0)	1 (0.5)	1 (0.6)	2 (0.6)	4 (0.4)
American			1	_		
Other	3 (1.7)	2 (2.3)	5 (2.7)	1 (0.6)	10 (3.0)	21 (2.2)
Total	181 (100.0)	88 (100.0)	184 (100.0)	170 (100.0)	332 (100.0)	955 (100.0)

Appendix X. Demographic Characteristics of Graduating Seniors

	Academic Year		
Demographic characteristics	AY 2006-07	AY 2007-08	
	(Fall 06-Spring 07)	(Fall 07-Spring 08)	Total
	f (%)	f (%)	f (%)
Residence			
In a rural area, on a farm	29 (17.0)	42 (12.7)	71 (14.1)
In a rural area, but not a farm	42 (24.6)	74 (22.3)	116 (23.1)
In a sub-urban community	84 (49.1)	182 (54.8)	266 (52.9)
In an urban community	16 (9.4)	34 (10.2)	50 (9.9)
Total	171 (100.0)	332 (100.0)	503 (100.0)
Residential Status			
In-state student	158 (92.4)	304 (91.6)	462 (91.8)
Out-of-state student	11 (6.4)	23 (6.9)	34 (6.8)
International student	2 (1.2)	5 (1.5)	7 (1.4)
Total	171 (100.0)	332 (100.0)	503 (100.0)

Appendix X. Demographic Characteristics of Respondents (continued)

* Residence and residential status were asked after 2006-07 academic year.

Primary major	Frequency	Percent
Packaging	189	17.6
Animal Science	145	13.5
Dietetics	82	7.6
Food Industry Management	63	5.9
Horticulture	56	5.2
Construction Management	56	5.2
Fisheries and Wildlife	55	5.1
Crop and Soil Science	54	5.0
Park, Recreation and Tourism Resources	43	4.0
Environmental Studies and Applications	43	4.0
Agribusiness Management	42	3.9
ANR Communication	36	3.4
Agriscience	36	3.4
Food Science	34	3.2
Interior Design	28	2.6
Landscape Architecture	24	2.2
Environmental Economics and Policy	21	2.0
Forestry	20	1.9
Entomology	15	1.4
Biosystems Engineering	6	0.6
Environmental Soil Science	5	0.5
Plant Pathology	3	0.3
Technology Systems Management	1	0.1
Others	15	1.4
Total	1072	100.0

Appendix Y. Primary Major of Respondents (Spring 2004-Spring 2008)

