ABSTRACT

        The question of whether a 15-week capstone course in
agricultural communications for seniors in agricultural communications builds
leadership skills beyond technical classroom learning was examined in a study
of 15 students enrolled in the capstone course. The descriptive study used a
pretest-posttest design and a leadership skills inventory to evaluate
development of the following skills: working with groups; understanding self;
communicating; making decisions; and leadership. The students rated their
development of the various skills on the Leadership Skill Inventory developed
by R.I. Carter, which uses a 5-point Likert-type scale. A comparison of the
means of the pretest and posttest scores for the entire population indicated
that the course resulted in a significant (1.13) improvement in overall
leadership skills. No difference was found for the working with groups area.
Very small differences were found in the understanding self (0.408),
communicating (0.60), and making decisions (0.28) areas. A slight difference
(-1.94) was found in the leadership area, as students' perceptions of their
leadership skills decreased on the posttest. Contrary to expectations, the
extra group work and assigned leaders involved in the capstone course did not
result in gains in students' leadership skills. It was suggested that
incorporating leadership training into the entire agricultural curriculum
instead of saving it for a capstone course might be more effective. (Contains
9 tables and 17 references.) (MN)

DEVELOPING LEADERSHIP SKILLS THROUGH CAPSTONE EXPERIENCES

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Introduction

Wagenaar (1993, p. 209) defined a capstone course as "a culminating experience in which students are expected to integrate, extend, critique, and apply knowledge gained in the major." Crunkilton (as cited in Andreasen & Trede, 2000) identified five required learning activities and six educational outcomes for capstone courses. The activities included project and/or case studies, small group work, issues analysis, oral communication, and industry involvement. The outcomes included decision making, critical thinking, collaborative/professional relationships, oral communications, written communications, and problem solving. According to Sitton (2001) the capstone experience offers students the opportunity to enhance the knowledge and skills they have acquired in previous classes. The collaboration of students throughout the semester shows that teamwork is vital to the completion and success of the project, just as those skills are necessary in the workplace. Leadership is not only a process, but it involves influencing a group of people toward a common goal (Northouse, 2001). The goal of AGCM 4413 is completion of the *Cowboy Journal*.

Purpose

The purpose of this study was to determine if a capstone course, such as AGCM 4413, builds leadership skills beyond technical classroom learning.

Research Objectives

1) To determine if leadership skills were developed during AGCM 4413, a 15-week capstone course for seniors in agricultural communications.

2) To determine if those students who held leadership positions experienced more leadership development than those who did not hold leadership positions.

3) To examine students' perceived leadership skills exhibited in five internal scales: Working with Groups, Understanding Self, Communicating, Making Decisions and Leadership.

Review of the Literature

Capstone Coursework

Crunkilton, et al. (1997) describes a capstone course as the following:

> A planned learning experience requiring students to synthesize previously learned subject matter content and to integrate new information into their knowledge base for solving simulated real world problems (as cited in Fairchild and Taylor, 2000, p.4).

According to Fairchild & Taylor (2000) a capstone course should focus on integration of knowledge, facilitate meaningful closure, and provide students with a contextual framework connecting theory and application based on their academic experiences and the connection among the disciplines and the role of their profession in the outside world. The American Association of Colleges (1991) states one approach to the capstone course stresses the values of reflection, connectedness, and diversity. At the end of the course, the student takes knowledge and experience provided in their past coursework and tests these against the challenges of the outside world (as cited in Dickinson, 1993).

Kerka (2001) cites the following objectives as typical to a capstone course (Fairchild & Taylor, 2000; Rhodu & Hoskins, 1995; Thomas, 1998):

1. To provide students an opportunity to synthesize knowledge from formal to informal learning and apply it to contemporary issue in the field.
2. To help prepare students for a successful career by providing experiential experiences that enhances their labor market advantage.
3. The increase students' understanding of the big picture, including ethical and social issues related to the field.
4. To help students understand the relevance of theory and research to practice.

The objectives of AGCM 4413 included the following:

1. To apply journalism and photography skills and knowledge gained through coursework to a publication or broadcast production setting; To specifically to enhance skills in:
   - Gathering, writing and editing agricultural news features
   - Selling, designing and creating sponsorships
   - Producing effective layout and design
2. To experience working as a member of a team.

According to Fairchild & Taylor (2000) students who complete capstone courses generally require less on the job training. Andreason and Trede (1998) discovered that agriculture capstone graduates found the application of knowledge to be the most beneficial outcome to their capstone experience (as cited in Kerka, 2001).

As in the case of AGCM 4413, most capstone courses are completed during a student's last semester of study. A student's capstone course should be scheduled in the last term of the student's program to ease the transition between academic experiences and entry into a career or further plan of study (Fairchild and Taylor, 2000). Agricultural communications graduates at the university are required to complete the course. If the magazine deadline is not met and no magazine is produced, students must re-take the course and are unable to graduate until the capstone course is completed.

Leadership Education

Employers want people who can think, solve problems, make decisions, communicate effectively, be cooperative, posses positive attitudes and have a positive self-concept (Ricketts, 2003). According to Brock (1992) employers of all occupations wish to find workers with the same qualities found in great leaders of our time. In day-to-day activity, leaders are common people striving to improve organizations and activities and employers want leadership to be included in an applicant's résumé.

As cited in Welch (2000, p. 71):
> At the heart of leadership education, most would include the need to train students to grasp the problems and issued facing society, to develop analytical and problem-solving skills, to learn to communicate and work effectively as members of a team, to have experience working in groups, to learn to work with people of diverse backgrounds, cultures, and academic disciplines, to learn to establish goals and motivate others to achieve those goals, and to know how to speak and write effectively (Hersh, 1998; Hopkins and Hopkins, 1998; Brungardt, Gould, Moore and Potts, 1997; Hashem, 1997; Reed, 1996; Conger 1992; Dertouzos, Lester, and Solow, 1989).

According to Watt (2003) leadership education should promote both youth and adult leadership, enhance leadership by establishing relationships for the exchange of ideas, information and research, and develop an environment encouraging the translation of leadership theory and research into practice.

Wren identified seven considerations in teaching leadership and development (as cited in Watt, 2003):

1. Students must be able to feel comfortable with the concept of leadership
2. Students must be able to recognize the various elements of leadership
3. Students need to know about the process of leadership
4. Students ought to have an increased awareness of the practice of leadership
5. Students should have a sense of purpose of leadership
6. Students should begin to develop an awareness of their individual strengths and weaknesses as leaders
7. Students need to enhance their skills of analysis with improving oral and written communication skills

For young people, leadership skills are best developed in real-world situations rather than in the classroom. Students can make connections between needs and resources, learning and service, and people and leadership (Boyd, Stafford, & Linder, 2001). According to Townsend (2002) true leadership education should be a long-term, sustained effort as leadership awareness may be provided in short, one-shot programs, and leadership learning may be provided in sustained programs. In AGCM 4413 students spend 16 weeks developing a 50-page magazine with a readership of close to 10,000 including students, faculty and alumni. Students are responsible for production of the magazine, including selling sponsorships, designing layout and writing and editing stories. Students search for, write, peer-critique and edit feature stories about students, faculty and programs within the agricultural communications department. Students work with high-resolution graphics and interact with each other to solve problems and take advantage of opportunities. Each aspect involves firm completion deadlines and each student plays a vital role in completion of the final product. The course instructor has little input on the magazine, as the production process is a team effort.

According to Northouse (2001) leadership occurs in groups, and groups are the context in which leadership takes place. Group projects can increase student learning, improve interpersonal skills and prepare students for what is becoming more common in the workplace: team projects (Michaelsen & Razook, 2003). Colbeck et al. (2000) found that "when students receive instructions on dynamics and how to work together in groups, they are more likely to experience more positive outcomes than when no instruction is provided (as cited in St. Clair & Tschirhart, 2002). Teams are organizational groups composed of members who are interdependent, who share common goals, and who must coordinate their activities to accomplish these goals (Hill, 2001). Team goals need to be very clear so that team members know when the objective has been met (Northouse, 2001). The team goal of AGCM 4413 is completion of the magazine.

As cited in Doren (2003), Larson and Lafasto (1989) list eight characteristics of high performing teams:

1. A clear, elevating goal
2. A results-driven structure
3. Competent members
4. Unified commitment
5. A collaborative climate
6. Standards of excellence
7. External support and recognition
8. Principled leadership

According to Doren (2003) teams enable the exchange of information, expertise and creativity to involve more than just one person. Collaboration, shared ownership and role-clarification are the livelihood of teams. Included in AGCM 4413 were five leadership positions. Students had the opportunity to apply for a position of their choice by stating their qualifications and strengths in their chosen area. Based upon the applications, students were appointed to positions by the course instructor. The following positions are ranked in order of importance:

1. Co-Editors (2): Coordinated all phases of production and business, seeing that everything ran according to the schedule. As the name implies, the editors were the final authority to ensure all copy was clear, correct and consistent throughout the publication. Editors were expected to see the publication to completion, including sending electronic files to the printer and making corrections to final proofs.

2. Graphics Coordinator (1): Coordinated all graphic elements, other than photographs, including fonts, template and line art. Graphics coordinators ensured the technical quality of all graphics and assisted other staff with design and layout.

3. Photo Coordinator (1): Coordinated all graphics files and assisted as needed with photographic shoots and file conversions. Responsible for technical quality of all photographs and asked to re-take photos if necessary.

4. Sponsorship Coordinator (1): Coordinated details and development of all sponsorships. Mailed invoices and thank you notes, accounted for payments and conversed with clients. Worked with editors to ensure all sponsorship layouts were included in the final text.

5. Circulation Coordinator (1): Coordinated distribution of the *Cowboy Journal*. Updated and prepared mailing list for upcoming issues and prepared final mailing list document.

Those students holding leadership positions (in particular the co-editors) held a position of authority over their peers. In order for harmony to exist in a group, communication and taking opinions and suggestions of the group into consideration is imperative. According to Fisher (1974) "some of the positive communication behaviors that account for a successful leader emergence include being verbally involved, being informed, seeking others' opinions, initiating new ideas, and being firm but not rigid" (as cited in Northouse, 2001, p. 6). According to Watt (2003) leaders must be effective communicators both interpersonally and organizationally. Shultz (1980) found that individuals' use of communication behaviors, as perceived by their work group, predicted their emergence as leaders (as cited in Flauto, 1999).

Leadership Skills Inventory

Developed by R.I. Carter at Iowa State University in 1980, the Leadership Skills Inventory originally consisted of 99 statements and 10 internal scales. The instrument, used to assess students' self-perception of leadership skills, now consists of 21 statements describing various leadership and life skills. The instrument includes five internal scales: Working with groups, understanding self, communicating, decision making and leadership.

Methodology

Students participating in the study included those enrolled in AGCM 4413. The study was descriptive and quantitative methods were used to collect data. Students were asked to complete the Leadership Skills Inventory (LSI). A pre/post test design was used to collect data. Skills examined included five internal scales for analysis: Working with groups, understanding self, communicating, making decisions and leadership. A likert scale was used to measure responses: 1-strongly agree, 2-agree, 3-undecided, 4-disagree, 5-strongly disagree.

Findings & Conclusions

Comparison of Overall Perception of Leadership Skills

	N	Mean	Difference
Pre-test	15	32.00	
Post-test	15	30.87	1.13

(Table 1)

Table one shows a positive difference (1.13) when comparing the means of the pre-test and post test scores for the entire population. Student's perceptions of their leadership skills improved on the post-test.

Comparison of Perceived Leadership Skills in Internal Areas of Analysis
Scale: 6-30
N=15

	Pre	Post	Difference
Working with groups	9.276	9.276	0
Understanding Self	8.244	7.836	0.408
Communicating	6.07	5.67	0.60
Making Decisions	8.94	8.66	0.28
Leadership	7.73	9.67	-1.94*

Slight difference (1-2 points)
(Table 2)

Table 2 shows pre-test and post-test scores for each internal area of analysis. A scale of 6 to 30 was used for analysis. There was no difference found in the working with groups area. Very small differences were found in the understanding self (0.408), communicating (0.60), and making decisions (0.28) areas. There was a slight difference (-1.94) in the leadership area, as students perceptions of their leadership skills decreased on the post-test.

Comparison of Perceived Leadership Skills for Those Who Held Leadership Positions

	N	Mean	Difference
Pre-test	9	31.56	
Post-test	9	32.56	-1.00

(Table 3)

Table 3 compares the pre-test and post-test mean scores of students who held leadership positions in the course. There was a negative difference found (-1.00) as students perceptions of their leadership skills decreased on the post-test.

Comparison of Perceived Leadership Skills for Those Who Did Not Hold Leadership Positions

	N	Mean	Mean Difference
Pre-test	6	32.67	
Post-test	6	28.33	4.33 skills improved

(Table 4)

Table 4 compares the pre-test and post-test means of students in the course who did not hold leadership positions. There was a positive difference (4.33) found as students overall perceptions of their leadership skills improved on the post-test.

Comparison of Those Who Held Leadership Positions and Those Who Did Not Hold Leadership Positions in Internal Areas of Analysis
Scale: 6-30

Working with groups skills

	N	Pre	Post	Difference
Leadership position	9	8.928	9.732	-0.804
No leadership position	6	9.396	8.40	0.996

(Table 5)

Table 5 shows a decrease at (-0.804) in the working with groups skills of students who held leadership positions, as compared to an increase (0.996) in the working with groups skills for students who did not hold leadership positions when comparing pre-test and post-test scores.

Understanding Self

	N	Pre	Post	Difference
Leadership position	9	8.136	8.532	-0.396
No leadership position	6	8.004	6.804	1.20*

slight difference (1-2 points)
(Table 6)

Table 6 shows a decrease (-0.396) in the understanding self skills of students who held leadership positions, as compared to slight increase (1.20) in the understanding self skills of students who did not hold leadership positions when comparing pre-test and post-test scores.

Communicating skills

	N	Pre	Post	Difference
Leadership position	9	9.0	8.34	0.66
No leadership position	6	9.255	8.505	0.75

(Table 7)

Table 7 shows an improvement in the communicating skills for student who held leadership positions (0.66) and students who did not hold leadership positions (0.75) when comparing pre-test and post-test scores.

Decision making skills

	N	Pre	Post	Difference
Leadership position	9	9.56	9.78	-0.22
No leadership position	6	8.34	7.34	1.00*

* slight difference (1-2 points)
(Table 8)

Table 8 shows a decrease (-0.22) in perceived decision making skill for students who held leadership positions, as compared to a slight improvement (1.00) in perceived decision making skills for students who did not hold leadership positions when comparing pre-test and post-test scores.

Leadership skills

	N	Pre	Post	Difference
Leadership position	9	8.11	9.11	-1.00*
No leadership position	6	7.0	9.5	-2.50**

*slight difference (1-2 points)
**notable difference (2-3 points)
(Table 9)

Table 9 shows a slight decrease in perceived leadership skills (-1.00) for students who held leadership positions, as compared to a notable decrease (-2.50) in perceived leadership skills for students who did not hold leadership positions when comparing pre-test and post-test scores.

Recommendations

Although it was expected that leadership skills would have been gained in a capstone course involving extra group work and assigned leaders, the findings show differently. The popular term 'integration' is appropriate in this circumstance. With many schools requiring a capstone course for undergraduate students, leadership skills should be integrated into the curriculum. Many schools lack the luxury of the undergraduate leadership classes offered in many of our land-grant institutions, and although it may be difficult to directly include leadership training into the capstone classroom, teachers must utilize 'teachable moments,' or ones during which they can incorporate leadership training into the learning experience. Dickinson (1991) speaks of the *senioritis syndrome* in many capstone courses, during which perfectly good students weaken and become reluctant to engage in serious work. This phenomena, which was very apparent through observation in AGCM 4413, raises important questions about the typical capstone course. Should the course be saved for a student's last semester, or should it be offered a semester or two earlier in their education so the student takes the course more seriously? A follow-up study should be conducted on students who are at least one year out of the course. Attitudes may change as students have a chance to utilize skills from the course in the real world.

References

Andreasen, R.J., & Trede, L.D. (2000). Perceived benefits of an agricultural capstone Course. *NACTA Journal*, 44(1), 51-56.

Boyd, B., Stafford, J., & Linder, J.R. (2001). Building effective teen leadership-A service learning approach.

Brock, W. E. (1992). A vision for education. *Vocational Education Journal*, 67(7), 20-22, 68.

Dickinson, J. (1993). The senior seminar at Rider College. *Teaching Sociology*, 21(3), 215-218.

Doren, S.V. (2003). *Horizontal virtual collaborative team (HVCT): an introduction.* Retrieved July 9, 2003, from http://www.afterchaos.com/model_hvctintroduction.php

Fairchild, G., & Taylor, T. (2000). *Using business and issue debates to facilitate synthesis In agribusiness capstone courses.* Retrieved July 8, 2003, from http://www.hcs.ohio-state.edu/hcs/EM/docs/capstone.html.

Flauto, F.J. (1999). Walking the talk: The relationship between leadership and communication competence. *The Journal of Leadership Studies*, 6(1/2).

Hill, S E. (2001). Team leadership. *Leadership Theory and Practice. Second Edition*. London: Sage Press.

Kerka, S. (2001). *Capstone experiences in career and technical education.* Retrieved July 8, 2003, from http://ericacve.org/docgen.asp?tbl=pab&ID=106.

Michaelson, L.K., & Razook, N.M.. (2003). *Making learning groups effective.* Retrieved July 9, 2003, from http://price.ou.edu/ibc/pdf/LearningGroups.pdf.

Northouse, P.G. (2001). *Leadership Theory and Practice. Second Edition.* London: Sage

Press.

Sitton, S. (2001). Capstone experience: The key to a successful agricultural communications program. [Abstract]. *National Agricultural Education Research Conference.*

St. Clair, L., & Tschirhart, M. (2002). When and where? Facilitating group work beyond the borders of the classroom. *Journal of Management Education*, 26(4).

Townsend, C. (2001). Leadership education: Fantasy or reality? *Journal of Leadership Education*, 1(1).

Wagenaar, T.C. (1993). The capstone course. *Teaching Sociology*, 21(3).

Watt, W. (2003). Effective leadership education: Developing a core curriculum in leadership studies. *Journal of Leadership Education*, 2(1).

Welch, R.L. (2000). Training a new generation of leaders. *Journal of Leadership Studies*, 7(1).

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