University of Wisconsin – Madison
College of Engineering

Pieper Family Foundation Endowed Chair for Servant Leadership

Accomplishments & Future Directions
January 2010

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Executive Summary

With the support of the Pieper Family Foundation and the endowed chair for Servant Leadership we have had an exceptional year at the UW – Madison College of Engineering. We have established a comprehensive model where Servant Leadership and the Social Change Model are aligned and offer clear direction on curriculum innovations, practical applications, and quantifiable/qualitative data collection. We have designed and offered new leadership development programs, and enhanced existing leadership development opportunities. The results: numerous accomplishments that meet the Pieper Criteria. Our innovations in coursework, service opportunities, research, and publications as well as data collection and analysis allowed us to survey and organize the current offerings and position us for exciting future directions.

Introduction

The National Academy of Engineering (NAE) states that twenty-first century engineering education must integrate critical core competencies into the undergraduate curriculum in order to *tackle the grand challenges of tomorrow* – one of the critical competencies is leadership skills, knowledges, and attitudes/values. Engineers have to harness technical knowledge and creativity together, and craft solutions to complex grand challenges such as the innovation of clean, affordable, and reliable energy. Engineering education must offer students the best knowledge and tools available to do this. *The Engineer of 2020: Visions of Engineering in the New Century* (National Academies Press, 2004) states that **engineers must rise to serve as business leaders as well as nonprofit and government leaders** who are obligated guide policy decisions that are technologically intricate and demand leaders who understand the strengths and limitations of science and technology.

Engineers must understand the principles of leadership and be able to practice them in growing proportions as their careers advance. They must also be willing to acknowledge the significance and importance of public service and its place in society, stretching their traditional comfort zone and accepting the challenge of bridging public policy and technology well beyond the roles accepted in the past.

To address these pressing educational needs, several leadership curriculum initiatives are now underway at the UW-Madison College of Engineering. Our past, present, and future initiatives fall into several categories: theory, practices, and quantitative and qualitative data. The larger objective is: to design and offer an innovative, allied set of leadership development programs for undergraduates to acquire critical leadership skills, knowledge and attitudes/values. Please note that throughout this document the concept of a *theory* (a tool that allows us to explain the past or predict future outcomes) is being used interchangeably with the word *model*.

Past & Present: Theory

With the Pieper Family Foundation's support we have established a past pattern of leadership program innovation. We have also built a comprehensive context for our innovation, a solid framework that keeps our main objective: to design and offer an innovative, allied set of leadership development programs for undergraduates to acquire critical leadership skills, knowledge and attitudes/values.

A Context for Leadership Curriculum Development

Two theories operate in concert to guide our leadership innovation. We believe that the Servant Leadership (Greenleaf, 1970) model is complimented by, and easily integrated with, the Social Change Model (SCM) (Komives and Wagner, 2009). We use these two models as the primary, overarching frameworks for curriculum innovation and enhancement. These models are compared in Table 1.

The Servant Leadership model is critical to guiding the innovations at the College of Engineering. In Greenleaf's classic essay *The Servant as Leader* he writes,

> The servant-leader is servant first...It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead. That person is sharply different from one who is leader first, perhaps because of the need to assuage an unusual power drive or to acquire material possessions...The difference manifests itself in the care taken by the servant-first to make sure that other people's highest priority needs are being served. The best test, and difficult to administer, is: Do those served grow as persons? Do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants? And, what is the effect on the least privileged in society? Will they benefit or at least not be further deprived?

There are many shared features between the Servant Leadership model (Appendix 1) and the Social Change Model (Appendix 2). Both models define the actualized leader's attitudes/actions as altruistic and meaningful leadership choices that are based on ethical values that strive to build community and create positive social change.

Table 1: Compare Servant Leadership model and the Social Change Model (SCM)

	Servant Leadership	**Social Change Model (SCM)**
Shared Features of Models	**Features of Model**	**Features of Model**
✓	Servant Leadership is Practical and Meaningful	Leadership is Purposeful
		Leadership is Process Not a Position
		Leadership Can Be Learned
✓		Leadership is Collaborative
✓	Servant Leadership is ethical (Appendix 1) 1. Self-awareness 2. Listening 3. Changing the pyramid 4. Developing your colleagues 5. Coaching not controlling 6. Unleashing the energy and intelligence of others 7. Foresight	Leadership is values-based (Appendix 2) 1. Consciousness 2. Congruence 3. Commitment 4. Collaboration 5. Common Purpose 6. Controversy with Civility 7. Citizenship
✓	Building Community	Leadership Results in Positive Social Change
	Resource: Spears & Lawrence, ed. *Practicing Servant-Leadership*	Resource: Outcalt et al. *A Leadership Approach for the New Millennium*

We have found that combining the Servant Leadership model with the Social Change Model (SCM) is effective because: (1.) This model has been adopted by colleges and universities across the country, as it was created by faculty and student life educators at UCLA through a grant from the Dwight D. Eisenhower Leadership Development Program of the United States Department of Education (2.) UW-Madison utilizes this model in existing campus programming, such as the campus Leadership Certificate and Student Leadership Program (SLP), which allows for marketing and cross-promotion of these programs and courses with other units and departments across campus. (3.) This model is also being used in other leadership courses at the UW outside of the College of Engineering, so in utilizing SCM, we are ensuring that the language and leadership premise we are using in the College of Engineering is consistent with the rest of the campus, as not to confuse students since leadership can be difficult to define.

The nationally-recognized body of knowledge found in the SCM provides sound theoretical grounding for our curriculum initiatives based on the premise that leadership can be learned, and that it is a process rather than a position, recognizing that everyone has the potential to be a leader. The goal of the SCM is to enhance student leadership development and learning in key content areas of individual, group and community values. The central principles of the SCM say leadership is "purposeful, collaborative, values-based" and "results in positive social change." The ultimate goal of the SCM is that students will have increased capacity to mobilize self and others to facilitate positive social change at UW-Madison and beyond, thus creating better citizens and future leaders. The SCM focuses on seven core values needed to become a successful leader and effect positive social change. Our leadership curriculum initiatives integrate and address each of the seven values: Consciousness of Self; Congruence; Commitment; Collaboration; Common Purpose; Controversy with Civility; and Citizenship. (Appendix 3)

Social Change Model – 7 C's

- Consciousness of self means being aware of the beliefs, values, attitudes, and emotions that motivate one to take action.
- Congruence refers to thinking, feeling, and behaving with consistency, genuineness, authenticity, and honesty towards others. Congruent persons are those whose actions are consistent with their most deeply-held beliefs and convictions.
- Commitment is the psychic energy that motivates the individual to serve and that drives the collective effort. Commitment implies passion, intensity, and duration.
- Collaboration is to work with others in a common effort. It constitutes the cornerstone value of the group leadership effort because it empowers self and others through trust.
- Common Purpose means to work with shared aims and values. It facilitates the group's ability to engage in collective analysis of the issues at hand and the task to be undertaken.
- Controversy with Civility recognizes two fundamental realities of any creative group effort: differences in viewpoint are inevitable, and that such difference must be aired openly but with civility.
- Citizenship is the process whereby the individual and the collaborative group become responsibly connected to the community and the society through the leadership development activity. To be a good citizen is to work for positive change on behalf of others and the community. (Appendix 3)

Past & Present: Practice & Data

With this sound theoretical foundation we were able to make great strides this year and accomplish many enhancements, new beginnings, and data collection/analysis. Below is a list of 2009 accomplishments; selected appendices are attached for reference.

2009 Accomplishments

1. Benchmarking Survey
    a. Alumni Survey/Statistics for Benchmarking (Appendix 4)
    b. EBI Benchmarking Survey (Appendix 5)
    c. EBI Benchmarking Leadership-Related Data (Appendix 6)
    d. Additional Service Statistics: Engineering Peace Corp Volunteer Data (Appendix 7)
2. Leadership Related Classes
    a. Restructure the Dean's Leadership Class (Appendix 8)
        i. Per Social Change Model which fits with the Servant Leadership Model
        ii. Offers students yet another step toward UW-Madison Leadership Certificate
        iii. Next year have Dick Pieper come and lecture to the Dean's Leadership Class
    b. Civil & Environmental Engineering Leadership Class (Appendix 9)
        i. It is squarely rooted in servant-based leadership and quite successful so far.
    c. Chris Carlson's Industrial & Systems Engineering Leadership Class (Appendix 10)
    d. Two online courses developed and tested
        i. Leadership (Appendix 11)
        ii. Sustainability (Appendix 12)
    e. Co-Curricular Professional Development Series (Appendix 13)
        i. Jointly offered by College of Engineering's Diversity Affairs Office, Engineering Career Services, Student Leadership Center, and Engineering General Resources Office
    f. Susan Piancenza's Professional Orientation Class (Appendix 14)
    g. Sorenson's free seminar on entrepreneurship and creativity (Appendix 15)
        i. It's a different type of leadership, but something new. It was marketed directly to Innovation Days students (over 100 students), but open to all.
3. College of Engineering Student Engagement through Student Leadership Center (Appendix 16)
4. UW-Madison Leadership Certificate (Appendix 17)
    a. This is becoming more and more accessible through the programming listed. There is a direct emphasis on service throughout the certificate's requirements.
5. Student Related Service
    a. Engineers Without Borders (Appendix 18)
        i. New Initiative: The Engineers Without Borders Book Collection collects and distributes books to help support the development of a library at Kano State University in Kano, Nigeria. Books and journals are being collected in partnership with University of Wisconsin- Platteville.
        ii. National Award
        iii. High School Team Competition Start Up
        iv. Kaufman Foundation Grant awarded for Red Cliffs Project
    b. Habitat for Humanity (Appendix 19)
        i. Chapter won National award
        ii. State Farm Grant awarded
        iii. Currently funding and building one house per year in the Madison area—an unprecedented level of service by a university chapter in the United States.

Future Directions: Theory, Practice & Data

1. Create set of fund for student use to motivate and reward service and leadership (above and beyond the Polygon's pot of money). May be used for conference travel, projects, supplies, and recognition of leadership and/or service within COE community

2. College of Engineering-wide service projects
    a. United Way Dane County's 2010 Day of Caring
    b. Martin Luther King Jr. Day – 2010 Celebration

3. Host a student leadership conference or retreat

4. Explore starting and sustaining a mentoring program

5. Offer a leadership scholarship in spring 2010 to send three exemplary student leaders each year to a national session of The Leadershape Institute at the Allerton Conference Center in Champaign, IL.

6. Send up to three students to the Greeleaf Servant Leadership Conference in 2010

7. Travel Abroad Service Projects (Appendix 20)

8. March 2010 College of Engineering Leadership Workshop for students, faculty, and staff

Pieper Criteria: Aligned with UW-Madison Accomplishments

1. Outcomes baseline data - baseline committed, documented, established

* Alumni Survey / stats for benchmarking + EBI data

2. Sound acceptance of servant leadership with students and faculty through their interest, voluntary inclusion in programs, organizations

* Restructure the Dean's Leadership Class
  + per Social Change model which fits neatly with the Servant Leadership model, and offers students yet another step towards a UW-Madison Leadership Certificate
  + next year, possibly, have Dick Pieper come and lecture to the Dean's Ldshp Class?

3. Outcomes measures - seniors, graduates in the workplace. Above demographic norm to max this area of #4…just measuring the internal and external data will create an award of some kind

* Alumni Survey / stats for benchmarking + EBI data
* Pending: analyze student leadership 2009-2010 membership rosters to quantitatively illustrate student involvement
* Number of students directly impacted by Pieper….Dean's class and other leadership class (norms)

4. Phenomenally above demographic norms for maximizing this area

* Habitat for Humanity student chapter taking on their own house…one per year and very few student chapters in US do this

5. Breakthrough venture that promises new beginnings in acts of goodness - on campus, community, collaborations, in our world

* Restructure the Dean's Leadership Class
  + per Social Change model which fits neatly with the Servant Leadership model, and offers students yet another step towards a UW-Madison Leadership Certificate
  + next year have Dick Pieper come and lecture to the Dean's Leadership Class?
* Two online courses developed and tested
  + Sustainability
  + Leadership: offers students yet another step towards a UW-Madison Leadership Certificate4. Norm Doll's class; it is squarely rooted in servant-based leadership and quite successful so far
* Co-curricular Professional Development Series jointly offered by COE's Diversity Affairs Office, Engineering Career Services, Student Leadership Center, and Engineering General Resources Office
  + Personality assessments: Myers-Briggs, True Colors, Social Media/Networking, Etiquette Dinner, Dress for Success, and Involvement 101 (aka why be active and serve your larger community)
* Pending: analyze student leadership 2009-2010 membership rosters to quantitatively illustrate student involvement
* UW-Madison Leadership Certificate is becoming more and more accessible through the programming listed here. There is a distinct emphasis on service throughout the certificate's requirements.
* New Initiative: collect and distribute library books to library in ____, Africa
* EWB
  + National Award
  + High School Team competition start up
  + Kaufman Foundation grant awarded for Red Cliffs project
* Habitat for Humanity
  + State Farm grant awarded
  + Currently funding, and building one house a year in the Madison area --an unprecedented level of service by a university chapter in the USA
* Pending: Create set of fund for student use to motivate and reward service and leadership (above and beyond the Polygon's pot of money). May be used for conference travel, projects, supplies, and recognition of leadership and/or service within COE community
* Pending: COE-wide service project
* Pending: Host a student leadership conference or retreat
* Pending: Start and sustain a mentoring program
* Pending: Offer a leadership scholarship with a monetary award for recognition and motivation's sake

6. An excellent year in carrying out all elements of the missions of the Chair as agreed on accepting the Chair

* See #5 above

7. A servant leader (past student or faculty) that leads at an element or segment of our world.

* Tim Miller (Appendix 21)
* Kevin Orner (Appendix 22)

Summary

The progress in 2009 on designing and offering new or enhanced leadership development opportunities has been exceptional. We have established a comprehensive theory. We found strength and guidance with Servant Leadership and SCM aligned. That enabled direction on practical applications and quantifiable/qualitative data collection. The results: numerous accomplishments that meet the Pieper Criteria. Our innovations in service opportunities, coursework, research, and publications as well as data collection and analysis allowed us to survey and organize the current offerings and set us for effective future directions.

Appendix 1: Servant Leadership Overview

The Understanding and Practice of Servant-Leadership

Servant Leadership Research Roundtable – August 2005

Larry C. Spears
President & CEO
The Greenleaf Center for Servant-Leadership

> *The servant-leader is servant first. It begins with the natural feeling that one wants to serve. Then conscious choice brings one to aspire to lead. The best test is: do those served grow as persons; do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants?*
>
> —*Robert K. Greenleaf*

The mightiest of rivers are first fed by many small trickles of water, and an apt way of conveying my belief that the growing number of individuals and organizations practicing servant-leadership has increased from a trickle to a river. Servant-leadership is also an expanding river, and one which carries with it a deep current of meaning and passion.

The servant-leader concept continues to grow in its influence and impact. In fact, we have witnessed an unparalleled explosion of interest and practice of servant-leadership in the past fifteen years. In many ways, it can truly be said that the times are only now beginning to catch up with Robert Greenleaf's visionary call to servant-leadership.

The idea of servant-leadership, now in its fourth decade as a concept bearing that name, continues to create a quiet revolution in workplaces around the world. This article is intended to provide a broad overview of the growing influence this inspiring idea is having on people and their workplaces.

In countless for-profit and not-for-profit organizations today we are seeing traditional, autocratic, and hierarchical modes of leadership yielding to a different way of working—one based on teamwork and community, one that seeks to involve others in decision making, one strongly based in ethical and caring behavior, and one that is attempting to enhance the personal growth of workers while improving the caring and quality of our many institutions. This emerging approach to leadership and service is called *servant-leadership.*

The words *servant* and *leader* are usually thought of as being opposites. When two opposites are brought together in a creative and meaningful way, a paradox emerges. And so the words *servant* and *leader* have been brought together to create the paradoxical idea of servant-leadership. The basic idea of servant-leadership is both logical and intuitive. Since the time of the industrial revolution, managers have tended to view people as objects; institutions have considered workers as cogs within a machine. In the past few decades we have witnessed a shift in that long-held view. Standard practices are rapidly shifting toward the ideas put forward by Robert Greenleaf, Stephen Covey, Peter Senge, Max DePree, Margaret Wheatley, Ken Blanchard, and many others who suggest that there is a better way to lead and manage our organizations.

Robert Greenleaf's writings on the subject of servant-leadership helped to get this movement started, and his views have had a profound and growing effect on many.

Robert K. Greenleaf

> *Despite all the buzz about modern leadership techniques, no one knows better than Greenleaf what really matters.*
> —*Working Woman* magazine

The term *servant-leadership* was first coined in a 1970 essay by Robert K. Greenleaf (1904-1990), entitled *The Servant as Leader.* Greenleaf, born in Terre Haute, Indiana, spent most of his organizational life in the field of management research, development, and education at AT&T. Following a 40-year career at AT&T, Greenleaf enjoyed a second career that lasted 25 years, during which time he served as an influential consultant to a number of major institutions, including Ohio University, MIT, Ford Foundation, B.. K. Mellon Foundation, the Mead Corporation, the American Foundation for Management Research, and Lilly Endowment Inc. In 1964 Greenleaf also founded the Center for Applied Ethics, which was renamed the Robert K. Greenleaf Center in 1985 and is now headquartered in Indianapolis.

As a lifelong student of how things get done in organizations, Greenleaf distilled his observations in a series of essays and books on the theme of "The Servant as Leader"—the objective of which was to stimulate thought and action for building a better, more caring society.

The Servant as Leader Idea

The idea of the servant as leader came partly out of Greenleaf's half century of experience in working to shape large institutions. However, the event that crystallized Greenleaf's thinking came in the 1960s, when he read Hermann Hesse's short novel *Journey to the East*—an account of a mythical journey by a group of people on a spiritual quest.

After reading this story, Greenleaf concluded that the central meaning of it was that the great leader is first experienced as a servant to others, and that this simple fact is central to his or her greatness. True leadership emerges from those whose primary motivation is a deep desire to help others.

In 1970, at the age of 66, Greenleaf published *The Servant as Leader,* the first of a dozen essays and books on servant-leadership. Since that time, more than a half-million copies of his books and essays have been sold worldwide. Slowly but surely, Greenleaf's servant-leadership writings have made a deep, lasting impression on leaders, educators, and many others who are concerned with issues of leadership, management, service, and personal growth.

What is Servant-Leadership?

In his works, Greenleaf discusses the need for a better approach to leadership, one that puts serving others—including employees, customers, and community—as the number one priority. Servant-leadership emphasizes increased service to others, a holistic approach to work, promoting a sense of community, and the sharing of power in decision making.

Who *is* a servant-leader? Greenleaf said that the servant-leader is one who is a servant first. In *The Servant as Leader* he wrote, "It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead. The difference manifests itself in the care taken by the servant—first to make sure that other people's highest priority needs are being served. The best test is: Do those served grow as persons; do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants? And, what is the effect on the least privileged in society? Will they benefit or at least not be further deprived?"

It is important to stress that servant-leadership is *not* a "quick-fix" approach. Nor is it something that can be

quickly instilled within an institution. At its core, servant-leadership is a long-term, transformational approach to life and work—in essence, a way of being—that has the potential for creating positive change throughout our society.

Characteristics of the Servant-Leader

> *Servant leadership deals with the reality of power in everyday life—its legitimacy, the ethical restraints upon it and the beneficial results that can be attained through the appropriate use of power.*
> *—The New York Times*

After some years of carefully considering Greenleaf's original writings, I have extracted a set of 10 characteristics of the servant-leader that I view as being of critical importance. The following characteristics are central to the development of servant-leaders:

1. *Listening:* Leaders have traditionally been valued for their communication and decision-making skills. While these are also important skills for the servant-leader, they need to be reinforced by a deep commitment to listening intently to others. The servant-leader seeks to identify the will of a group and helps clarify that will. He or she seeks to listen receptively to what is being said (and not said!). Listening also encompasses getting in touch with one's own inner voice and seeking to understand what one's body, spirit, and mind are communicating. Listening, coupled with regular periods of reflection, is essential to the growth of the servant-leader.

2. *Empathy:* The servant-leader strives to understand and empathize with others. People need to be accepted and recognized for their special and unique spirits. One assumes the good intentions of co-workers and does not reject them as people, even while refusing to accept their behavior or performance. The most successful servant-leaders are those who have become skilled empathetic listeners.

3. *Healing:* Learning to heal is a powerful force for transformation and integration. One of the great strengths of servant-leadership is the potential for healing one's self and others. Many people have broken spirits and have suffered from a variety of emotional hurts. Although this is a part of being human, servant-leaders recognize that they have an opportunity to "help make whole" those with whom they come in contact. In *The Servant as Leader* Greenleaf writes: "There is something subtle communicated to one who is being served and led if, implicit in the compact between servant-leader and led, is the understanding that the search for wholeness is something they share."

4. *Awareness:* General awareness, and especially self-awareness, strengthens the servant-leader. Making a commitment to foster awareness can be scary—you never know what you may discover. Awareness also aids one in understanding issues involving ethics and values. It lends itself to being able to view most situations from a more integrated, holistic position. As Greenleaf observed: "Awareness is not a giver of solace—it is just the opposite. It is a disturber and an awakener. Able leaders are usually sharply awake and reasonably disturbed. They are not seekers after solace. They have their own inner serenity."

5. *Persuasion:* Another characteristic of servant-leaders is a primary reliance on persuasion, rather than using one's positional authority, in making decisions within an organization. The servant-leader seeks to convince others, rather than coerce compliance. This particular element offers one of the clearest distinctions between the traditional authoritarian model and that of servant-leadership. The servant-leader is effective at building consensus within groups. This emphasis on persuasion over coercion probably has its roots within the beliefs of The Religious Society of Friends (Quakers), the denomination with which Robert Greenleaf himself was most closely allied.

6. *Conceptualization:* Servant-leaders seek to nurture their abilities to "dream great dreams." The ability to look at a problem (or an organization) from a conceptualizing perspective means that one must think beyond day-to-day realities. For many managers this is a characteristic that requires discipline and practice. The traditional manager is focused on the need to achieve short-term operational goals. The manager who wishes to also be a servant-leader must stretch his or her thinking to encompass broader-based conceptual thinking. Within organizations, conceptualization is also the proper role of boards of trustees or directors. Unfortunately, boards can sometimes become involved in the day-today operations

(something that should always be discouraged!) and fail to provide the visionary concept for an institution. Trustees need to be mostly conceptual in their orientation, staffs need to be mostly operational in their perspective, and the most effective CEOs and leaders probably need to develop both perspectives. Servant-leaders are called to seek a delicate balance between conceptual thinking and a day-to-day focused approach.

7. *Foresight:* Closely related to conceptualization, the ability to foresee the likely outcome of a situation is hard to define, but easy to identify. One knows it when one sees it. Foresight is a characteristic that enables the servant-leader to understand the lessons from the past, the realities of the present, and the likely consequence of a decision for the future. It is also deeply rooted within the intuitive mind. As such, one can conjecture that foresight is the one servant-leader characteristic with which one may be born. All other characteristics can be consciously developed. There hasn't been a great deal written on foresight. It remains a largely unexplored area in leadership studies, but one most deserving of careful attention.

8. *Stewardship:* Peter Block (author of *Stewardship* and *The Empowered Manager)* has defined stewardship as "holding something in trust for another." Robert Greenleaf's view of all institutions was one in which CEOs, staffs, and trustees all played significant roles in holding their institutions in trust for the greater good of society. Servant-leadership, like stewardship, assumes first and foremost a commitment to serving the needs of others. It also emphasizes the use of openness and persuasion rather than control.

9. *Commitment to the growth of people:* Servant-leaders believe that people have an intrinsic value beyond their tangible contributions as workers. As such, the servant-leader is deeply committed to the growth of each and every individual within his or her institution. The servant-leader recognizes the tremendous responsibility to do everything within his or her power to nurture the personal, professional, and spiritual growth of employees. In practice, this can include (but is not limited to) concrete actions such as making available funds for personal and professional development, taking a personal interest in the ideas and suggestions from everyone, encouraging worker involvement in decision making, and actively assisting laid-off workers to find other employment.

10. *Building community:* The servant-leader senses that much has been lost in recent human history as a result of the shift from local communities to large institutions as the primary shaper of human lives. This awareness causes the servant-leader to seek to identify some means for building community among those who work within a given institution. Servant-leadership suggests that true community can be created among those who work in businesses and other institutions. Greenleaf said: "All that is needed to rebuild community as a viable life form for large numbers of people is for enough servant-leaders to show the way, not by mass movements, but by each servant-leader demonstrating his own unlimited liability for a quite specific community-related group."

These ten characteristics of servant-leadership are by no means exhaustive. However, I believe that the ones listed serve to communicate the power and promise that this concept offers to those who are open to its invitation and challenge.

Tracing the Growing Impact of Servant-Leadership

> *Servant leadership has emerged as one of the dominant philosophies being discussed in the world today.*
> —*Indianapolis Business Journal*

Servant-Leadership as an Institutional Model

Servant-leadership principles are being applied in significant ways in a half-dozen major areas. The first area has to do with servant-leadership as an institutional philosophy and model. Servant-leadership crosses all boundaries and is being applied by a wide variety of people working with for-profit businesses; not-for-profit corporations; and churches, universities, health care, and foundations.

Servant-leadership advocates a group-oriented approach to analysis and decision making as a means of strengthening institutions and improving society. It also emphasizes the power of persuasion and seeking consensus, over the old top-down form of leadership. Some people have likened this to turning the hierarchical pyramid upside down. Servant-leadership holds that the primary purpose of a business should be to create a positive impact on its employees and community, rather than using profit as the sole motive.

Many individuals within institutions have adopted servant-leadership as a guiding philosophy. An increasing number of companies have adopted servant-leadership as part of their corporate philosophy or as a foundation for their mission statement. Among these are The Toro Company (Minneapolis, Minnesota), Synovus Financial Corporation (Columbus, Georgia), ServiceMaster Company (Downers Grove, Illinois), The Men's Wearhouse (Fremont, California), Southwest Airlines (Dallas, Texas), Starbucks (Seattle, Washington), and TDIndustries (Dallas, Texas).

TDIndustries (TD), one of the earliest practitioners of servant-leadership in the corporate setting, is a Dallas-based heating and plumbing contracting firm that has consistently ranked in the top ten of *Fortune* magazine's *100 Best Companies to Work for in America.* TD's founder, Jack Lowe, Sr., came upon *The Servant as Leader* essay in the early 1970s and began to distribute copies of it to his employees. They were invited to read through the essay and then to gather in small groups to discuss its meaning. The belief that managers should serve their employees became an important value for TDIndustries.

Thirty years later, Jack Lowe, Jr., continues to use servant-leadership as the guiding philosophy for TD. Even today, any TDPartner who supervises at least one person must go through training in servant-leadership. In addition, all new employees continue to receive a copy of *The Servant as Leader* essay; and TD has developed elaborate training modules designed to encourage the understanding and practice of servant-leadership.

Some businesses have begun to view servant-leadership as an important framework that is helpful (and necessary) for ensuring the long-term effects of related management and leadership approaches such as continuous quality improvement and systems thinking. It is suggested that institutions which want to create meaningful change may be best served in starting with servant-leadership as the foundational understanding and then building on it through any number of related approaches.

Servant-leadership has influenced many noted writers, thinkers, and leaders. Max DePree, former chairman of the Herman Miller Company and author of *Leadership Is an Art* and *Leadership Jazz* has said, "The servanthood of leadership needs to be felt, understood, believed, and practiced." And Peter Senge, author of *The Fifth Discipline,* has said that he tells people "not to bother reading any other book about leadership until you first read Robert Greenleaf's book, *Servant-Leadership.* I believe it is the most singular and useful statement on leadership I've come across." In recent years, a growing number of leaders and readers have "rediscovered" Robert Greenleaf's own writings through books by DePree, Senge, Covey, Wheatley, Autry, and many other popular writers.

Education and Training of Not-for-Profit Trustees

A second major application of servant-leadership is its pivotal role as the theoretical and ethical basis for "trustee education." Greenleaf wrote extensively on servant-leadership as it applies to the roles of boards of directors and trustees within institutions. His essays on these applications are widely distributed among directors of for-profit and nonprofit organizations. In his essay *Trustees as Servants* Greenleaf urged trustees to ask themselves two central questions: "Whom do you serve?" and "For what purpose?"

Servant-leadership suggests that boards of trustees need to undergo a radical shift in how they approach their roles. Trustees who seek to act as servant-leaders can help to create institutions of great depth and quality. Over the past twenty years, two of America's largest grant-making foundations (Lilly Endowment Inc. and the W. K. Kellogg Foundation) have sought to encourage the development of programs designed to educate and train not-for-profit boards of trustees to function as servant-leaders. John Carver, the noted author on board governance, has cited servant-leadership as the philosophical foundation upon which his Policy Governance Model © may best operate.

Community Leadership Programs

A third application of servant-leadership concerns its deepening role in community leadership organizations across the country. A growing number of community leadership groups are using Greenleaf Center resources as part of their own education and training efforts. Some have been doing so for more than twenty years.

M. Scott Peck, who has written about the importance of building true community, says the following in *A World Waiting to Be Born:* "In his work on servant-leadership, Greenleaf posited that the world will be saved if it can develop just three truly well-managed, large institutions—one in the private sector, one in the public sector, and one in the nonprofit sector. He believed—and I know—that such excellence in management will be achieved through an organizational culture of civility routinely utilizing the mode of community."

Service-Learning Programs

A fourth application involves servant-leadership and experiential education. During the past 25 years experiential education programs of all sorts have sprung up in virtually every college and university—and, increasingly, in secondary schools, too. Experiential education, or "learning by doing," is now a part of most students' educational experience.

Around 1980, a number of educators began to write about the linkage between the servant-leader concept and experiential learning under a new term called "service-learning." It is service-learning that has become a major focus for some experiential education programs in the past two decades.

The National Society for Experiential Education (NSEE) has adopted service-learning as one of its major program areas. In 1990 NSEE published a massive three-volume work called *Combining Service and Learning,* which brought together many articles and papers about service-learning—several dozen of which discuss servant-leadership as the philosophical basis for experiential learning programs.

Leadership Education

A fifth application of servant-leadership concerns its use in both formal and informal education and training programs. This is taking place through leadership and management courses in colleges and universities, as well as through corporate training programs. A number of undergraduate and graduate courses on management and leadership incorporate servant-leadership within their course curricula. Several colleges and universities now offer specific courses on servant-leadership. Also, a number of noted leadership authors, including Peter Block, Ken Blanchard, Max DePree, and Peter Senge, have acclaimed the servant-leader concept as an overarching framework that is compatible with, and enhancing of, other leadership and management models such as total quality management, systems thinking, and community-building.

In the area of corporate education and training programs, dozens of management and leadership consultants now utilize servant-leadership materials as part of their ongoing work with corporations. Among these companies are U.S.Cellular, Synovus Financial, and Southwest Airlines. A number of consultants and educators are now touting the benefits to be gained in building a total quality management approach upon a servant-leadership foundation. Through internal training and education, institutions are discovering that servant-leadership can truly improve how business is developed and conducted, while still successfully turning a profit.

Personal Transformation

A sixth application of servant-leadership involves its use in programs relating to personal growth and transformation. Servant-leadership operates at both the institutional and personal levels. For individuals it offers a means to personal growth—spiritually, professionally, emotionally, and intellectually. It has ties to the ideas of M. Scott Peck *(The Road Less Traveled),* Parker Palmer *(The Active Life),* Ann McGee-Cooper *(You Don't Have to Go Home from Work Exhausted!),* and others who have written on expanding human potential. A particular strength of servant-leadership is that it encourages everyone to actively seek opportunities to both serve and lead others, thereby setting up the potential for raising the quality of life throughout society.

Servant-Leadership and Cultural Tradition

For some people, the word *servant* may prompt an initial negative connotation due to the oppression that many people—especially women and people of color—have historically endured. For others, the word *leader* may also carry with it a great deal of unfavorable historical baggage. However, upon closer analysis many come to appreciate the inherent spiritual nature of what Greenleaf intended by the pairing of *servant* and *leader.* The startling paradox of the term *servant-leadership* serves to prompt new insights.

In an article titled, "Pluralistic Reflections on Servant-Leadership," Juana Bordas has written: "Many women, minorities and people of color have long traditions of servant-leadership in their cultures. Servant-leadership has very old roots in many of the indigenous cultures. Cultures that were holistic, cooperative, communal, intuitive and spiritual. These cultures centered on being guardians of the future and respecting the ancestors who walked before."

Women leaders and authors are writing and speaking about servant-leadership as a leadership philosophy that is most appropriate for both women and men to embrace. Patsy Sampson, former president of Stephens College in Columbia, Missouri, is one such person. In an essay on women and servant-leadership she writes: "So-called (service-oriented) feminine characteristics are exactly those which are consonant with the very best qualities of servant-leadership."

A Growing Movement

> *Servant-leadership works like the consensus building that the Japanese are famous for. Yes, it takes a while on the front end; everyone's view is solicited, though everyone also understands that his view may not ultimately prevail. But once the consensus is forged, watch out: With everybody on board, your so called implementation proceeds wham-bam.*
> —*Fortune* Magazine

Interest in the philosophy and practice of servant-leadership is now at an all-time high. Hundreds of articles on servant-leadership have appeared in various magazines, journals, and newspapers over the past decade. Many books on the general subject of leadership have been published that recommend servant-leadership as a more holistic way of being. And, there is a growing body of literature available on the understanding and practice of servant-leadership.

The Greenleaf Center for Servant-Leadership (www.greenleaf.org) is an international, not-for-profit educational organization that seeks to encourage the understanding and practice of servant-leadership. The Center's mission is to fundamentally improve the caring and quality of all institutions through a servant-leader approach to leadership, structure, and decision making.

In recent years, the Greenleaf Center has experienced tremendous growth and expansion. Its growing programs include the following: the worldwide sales of more than 130 books, essays, and videotapes on servant-leadership; research and publishing; a membership program; a Speakers Bureau; and an annual International Conference on Servant-Leadership. A number of notable Greenleaf Center members have spoken at our annual conferences, among them: James Autry, Ken Blanchard, Peter Block, Stephen Covey, Max DePree, James Kouzes, Parker Palmer, M. Scott Peck, Peter Senge, Meg Wheatley, George Zimmer, and Danah Zohar. These and other conference speakers have spoken of the tremendous impact that the servant-leader concept has played in the development of his or her own understanding of what it means to be a leader.

Paradox and Pathway

The Greenleaf Center's logo is a variation on the geometrical figure called a "mobius strip." A mobius strip, pictured here, is a one-sided surface constructed from a rectangle by holding one end fixed, rotating the opposite end through 180 degrees, and applying it to the first end—thereby giving the appearance of a two-sided figure. It thus appears to have a front side that merges into a back side, and then back again into the front.

Figure 2.1 Mobius strip

The mobius strip symbolizes, in visual terms, the servant-leader concept—a merging of servanthood into leadership and back into servanthood again, in a fluid and continuous pattern. It also reflects the Greenleaf Center's own role as an institution seeking to both serve and lead others who are interested in leadership and service issues.

Life is full of curious and meaningful paradoxes. Servant-leadership is one such paradox that has slowly but surely gained hundreds of thousands of adherents over the past thirty-five years. The seeds that have been planted have begun to sprout in many institutions, as well as in the hearts of many who long to improve the human condition. Servant-leadership is providing a framework from which many thousands of known and unknown individuals are helping to improve how we treat those who do the work within our many institutions. Servant-leadership truly offers hope and guidance for a new era in human development, and for the creation of better, more caring institutions.

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Larry C. Spears has served as President & CEO of the Robert K. Greenleaf Center for Servant-Leadership since 1990. Before that, he held positions with the Greater Philadelphia Philosophy Consortium, the Great Lakes Colleges Association's Philadelphia Center, and *Friends Journal*. He has edited or co-edited nine books on servant-leadership, as well as the contemporary essay series, *Voices of Servant-Leadership*, and he is the Senior Editor of the Greenleaf Center's quarterly newsletter, *The Servant Leader*. Larry has published dozens of articles on servant-leadership in a variety of books, journals, and in other publications. Under his leadership, The Greenleaf Center has experienced tremendous growth and influence, now with eleven offices located around the world, in Australia/New Zealand, Brazil, Canada, Japan, Korea, The Netherlands, The Philippines, Singapore, South Africa, the United Kingdom, and the United States. He has thirty years of experience in organizational leadership, entrepreneurial development, non-profit management, and grantwriting, having envisioned and authored over thirty successful grant projects totaling several million dollars.

Spears is a member of the Association of Fundraising Professionals and a Fellow of the World Business Academy. From 1988-2000, he served as a board trustee for *Friends Journal* and chaired its advancement committee. He and his wife, Beth, have two sons: James, 17, and Matthew, 14.

"The Understanding and Practice of Servant Leadership" is an adaptation of chapter 2 in *Practicing Servant Leadership: Succeeding Through Trust, Bravery, and Forgiveness*, Larry C. Spears and Michele Lawrence editors, 2004, Jossey-Bass.

Appendix 2: Social Change Model of Leadership

NASPA Journal, Vol. 38, no. 2, Winter 2001

A Leadership Approach for the New Millennium: A Case Study of UCLA's Bruin Leaders Project

Charles L. Outcalt
Shannon K. Faris
Kathleen N. McMahon
Philip M. Tahtakran
Christopher B. Noll

The current case study investigates the application of a non-hierarchical leadership model at an urban public research university. Following a review of recent contributions to leadership theory, especially with regard to student development, the authors balance discussions of the values on which the program under review is based with descriptions of the practical structure of the program. In addition, they suggest means by which other campuses can tailor this program to their resources, opportunities, and needs. The case study concludes with a discussion of the program's effect on students' cognitive and social development.

Charles L. Outcalt is the former assistant dean of students at UCLA; Shannon K. Faris is a project manager at Public Works, Inc. and a former staff member of the Bruin Leaders Project at UCLA; Kathleen N. McMahon is the assistant dean of students at UCLA; Philip M. Tahtakran is a student at George Washington University Law School; and Christopher B. Noll is a graduate of UCLA's Student Affairs Master's Degree program.

Societal and Campus Contexts

Since the late 1970s a number of scholars have criticized the traditional construct of leadership (Astin & Leland, 1991; Burns, 1978; Komives, Lucas, & McMahon, 1998; Lipman-Blumen, 1996; Rogers, 1996; Rost, 1991; Greenleaf, 1977). During the last 20 years, the rapid development of technology and dissemination of information have eliminated the barriers of time and space, creating a literal global village. As part of these sweeping and pervasive changes, traditional hierarchical structures have been reevaluated (Hesselbein, Goldsmith, & Beckhard, 1996). "Leadership is now understood by many to imply collective action, orchestrated in such a way as to bring about significant change while raising the competencies and motivation of all those involved" (Bornstein & Smith, 1996, p. 281). Relational models of leadership, such as those described above, are enhanced by the centrality of collaboration and change (Astin & Leland, 1991; Lipman-Blumen, 1996; Matusak, 1997). These models add a moral component to leadership as they make explicit the goal that both the leaders and followers prompt each other to reach higher ethical aspirations and conduct.

The educational literature reveals only a few leadership theories using the nonhierarchical leadership paradigm for college students, including Komives' et al. (1998) relational model and the Social Change Model of Leadership (SCM), which is the model used by the leadership program examined in the current study. Posner & Brodsky (1992) asserted that the conceptual basis of most college leadership programs is taken from noneducational environments such as business and the private sector. They suggested that these models may not be a perfect fit because of the differences between the two populations in age, experience, and leadership styles. Taken together, these factors indicate the need for a new approach to leadership development, especially at the college level. Such a new approach must include the reevaluation of hierarchy, emphasizing diversity, complexity, and interdependence.

Cherrey and Isgar (1998) suggested five elements to be incorporated throughout student leadership programs: understanding the complexity and diversity of an interrelated system; continual and critical reflecting and learning with a commitment to the betterment of soci-

ety; valuing differences; embracing inclusiveness; and practicing collaboration. These elements echo the standards for student leadership programming established by the Council for the Advancement of Standards in Higher Education (CAS), which define leadership as "an inherently relational process of working with others to accomplish a goal or to promote change" (CAS, 1997, p. 111).

As an urban public research university, UCLA has a complex and multifaceted mission. The Bruin Leaders Project (BLP), a student leadership development program, contributes to the fulfillment of several of the university's goals by providing an opportunity for personal development and the linkage of academic knowledge to personal practice. The BLP was developed in early 1997 in response to a variety of student and institutional needs and trends. An internal *Student Welfare* report, conducted by a team of student affairs staff and students, found that the campus had many highly effective yet isolated leadership development programs and therefore identified a need for a university-wide comprehensive leadership development program (UCLA, 1996).

Within a campus environment in which leadership development was increasingly understood as an urgent need, BLP staff learned of an emerging model of leadership, as well as an accessible, practical, inexpensive mode of delivering leadership programs. The new leadership development model, the SCM, had been formulated largely at UCLA, but it was not widely used there, despite its growing popularity at campuses across the nation. The SCM was especially attractive to BLP staff because of its emphasis on honoring difference and cultivating inclusiveness. These values held special appeal for UCLA's diverse campus, especially in the wake of national and local trends, such as affirmative action retrenchment, which seemed to threaten academic pluralism. At a 1996 National Association of Student Personnel Administrators (NASPA) regional conference, staff from the University of California-Irvine's Passport Program presented their program model. UCLA staff combined the values of the SCM with the elegant design of the Passport Program, and, in consultation with student affairs staff from across the state and nation (via site visits and active participation at NASPA conferences), tailored the ideas and practices they found to the particular needs and opportunities of the UCLA campus.

Why the SCM?

The SCM is the vehicle BLP staff identified as designed explicitly for college students within the emerging postindustrial paradigm of leadership. This model was crafted by a group of 15 student affairs professionals, researchers from higher education, and members of the private sector. Under a grant from the Dwight D. Eisenhower Leadership Development Program, this group used research and literature from social change movements, such as the women's movement, as a conceptual basis (Higher Education Research Institute [HERI], 1996).

From the social change literature, several trends emerged that characterized the "leaders" of these movements. These trends form SCM's six underlying assumptions: leadership is concerned with effecting change on behalf of the betterment of others; leadership is collaborative; leadership is a process, rather than a position; leadership should be value-based; ALL students are potential leaders; and service is a powerful vehicle for developing students' leadership skills (HERI, 1996).

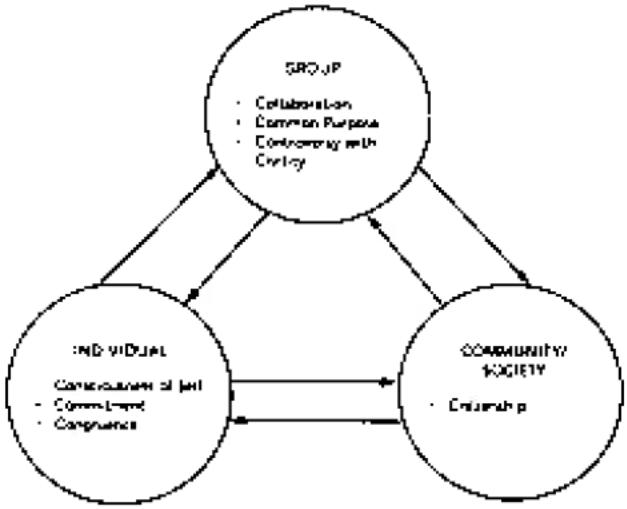
The SCM consists of seven principles organized into three domains.

1. In the Individual Domain lie *consciousness of self, congruence,* and *commitment.*
2. In the Group Domain lie *collaboration, common purpose,* and *controversy with civility.*
3. Finally, in the Community/Society Domain is *citizenship.*

The model is presented as a wheel in which each of the principles interacts with and influences each of the other principles. For example, congruence (an individual principle) affects and interacts with common purpose (a group principle), which ultimately affects citizenship (HERI, 1996).

The objectives of the SCM are three-fold: to bring about self-knowledge through reflection and active participation; to increase leadership competence, which is defined as the "capacity to mobilize oneself and others to serve and to work collaboratively" (HERI, 1996, p. 19); and to bring about change for the betterment of society. The SCM is an excellent tool for facilitating leadership development of college stu-

Figure 1
The Three Domains of the
Social Change Model of Leadership Development
Adapted from HERI (1996)

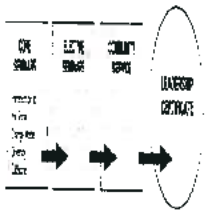


dents in the context of the industrial paradigm. It is inclusive, non-hierarchical, process-centered, and emphasizes the role of diversity within a successful group process, with the goal of contributing to the common good (HERI, 1996).

Applying the Model: The BLP's Structure

In tailoring the values of the SCM to UCLA's mission and needs, the program staff, including a student facilitation team (SFT), developed a series of seminars and a service component. Student participants in the program attend at least seven seminars, all of which are highly interactive and experiential. After attending these seminars and performing service, students are awarded a "Bruin Leaders Certificate" at a year-end awards ceremony. Three of these seminars (the "core") are required; the others are "electives" chosen from a roster of several dozen sessions offered throughout the year.

The core seminars include: an introduction to the BLP and the SCM; a diversity awareness/appreciation session (especially valuable and appreciated at UCLA, given recent local and national struggles concerning campus diversity); and a capstone that offers students a



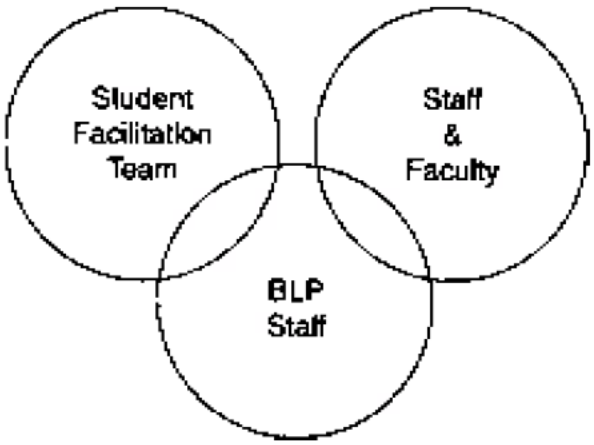
chance to reflect and meditate on what they have experienced and learned in the program. The dozens of elective seminars feature women's leadership; servant leadership; lesbian, gay, bisexual, and transgender issues in leadership; personal leadership development; values clarification; multicultural issues; assertiveness; creativity; and many other topics.

The BLP's service component requires that students undertake at least four hours of community service, which they may complete at the site of their choice, or by participating in service opportunities organized by the SFT. This component of the program provides each student with the opportunity to emulate the values of the SCM, which they have learned in the seminar series. BLP staff and students decided to incorporate service as a requirement because of its importance within the SCM, and because recent educational literature attests to the value of service for student development. Service has been found to affect positively immediate college outcomes such as commitment to civic responsibility, academic development, and life skills (Astin & Sax, 1998). Students who participate in service while in college demonstrate an enhanced interest in issues relating to multiculturalism and diversity as well as a stronger commitment to serving their communities. These immediate effects of service participation have been found to persist beyond college as well (Astin & Sax, 1999). Accordingly, program participants and staff took part in a Service Weekend organized by members of the SFT near the end of the program's second year in May 1999. Students and staff volunteered in a children's festival promoting literacy among elementary school children and also worked on various construction and arts projects at an inner-city community center in Los Angeles.

Emulating the Model: Staff Process

BLP staff have relied on the values of the SCM in their own organization and group processes. To reflect and practice the SCM's tenets, BLP staff are organized as a series of interlocking circles rather than a more traditional hierarchical pyramid. One circle contains the staff team, those professionals charged with facilitating the BLP at UCLA. Another contains the SFT, comprised of 25 undergraduates with an interest in leadership development. The third circle contains individuals, typically faculty and student affairs staff, who volunteer their time and expertise to become program presenters.

Figure 3
Bruin Leaders Project Interlocking
Organizational Structure



The BLP staff team of three student affairs professionals, each of whom give the BLP part of their time, was organized through the efforts of UCLA's assistant vice chancellor for student and campus life/dean of students. Staff members rely greatly on the input of the SFT, the undergraduates who comprise the second circle of the BLP. These students, who were nominated for inclusion in the BLP by faculty and staff, come from a wide array of personal and educational backgrounds and are representative of the diversity of the UCLA student community. The third circle is comprised primarily of UCLA faculty and staff with invaluable but under-used leadership development skills who wanted to contribute to the program. The BLP provides

these individuals with a way of sharing their expertise with students and of connecting with students outside their day-to-day roles as professors, counselors, managers, and advisors. Together, staff, students, and faculty strive to practice a nonhierarchical style of leadership consistent with the SCM in their group practice, seeking consensus with all participants when making decisions, from program budget to long-term goals to details of marketing and logo design.

Evaluation for Future Program Growth and Success

The BLP is evaluated on both a continuing and an annual basis. The continuing evaluation is conducted at the end of each seminar, when all participants are asked to complete an on-the-spot evaluation of the seminar and presenter. Results of these evaluations are used for program planning and are shared with session presenters immediately following seminars.

Program staff also administered comprehensive year-end evaluations in June 1998 (at the end of the program's first year) and again in June 1999. Conducting a program evaluation after the first year was challenging but also critical to illustrating the program's value and in indicating avenues of future development and innovation. These evaluations, which were conducted via surveys and focus groups, measured participants' perceptions of the programs' effectiveness and self-reported change in students' leadership abilities. In both evaluations, students reported very high degrees of satisfaction with the program, stating that they were very happy with the program's structure and seminar presenters and would recommend the program to others. Most importantly, students noted marked improvement in their leadership skills after participating in the program, reporting a much higher commitment to civic responsibility, an interest in developing leadership in others, and a sense of self and sense of personal ethics. Finally, this evaluation showed that program participants came from a wide range of UCLA's diverse campus community with no one racial or ethnic group forming a majority of participants.

During the second year of evaluation, program staff also measured students' cognitive understanding of the SCM through a survey instru-

ment designed specifically for use with the SCM (Tyree, 1998) and additional focus groups. Not only did participants demonstrate a thorough understanding of the SCM's constructs (as measured by surveys), but also they exhibited a comprehensive understanding of the way the constructs fit into the context of their own lives.

The program's success was demonstrated by other criteria as well. During the first 2 years the budget was increased by 300%, and the program was awarded permanent office space. In addition, almost all volunteer presenters chose to return to the program. Finally, and most importantly, attendance at seminars was up markedly. The program has been drawn into leadership development efforts across the campus. For example, one program staff member serves as the chair of a leadership advisory board. Working with this advisory board, BLP staff plan to continue to expand the program through ever-closer collaboration with existing leadership programs to meet the board's long-term goal of creating a seamless environment for student leadership development on campus.

Findings

Students in the BLP develop skills that are useful both inside and outside the classroom, such as public speaking, diversity appreciation, personal values clarification, teamwork development, and the value of respect and responsibility. These skills help connect classroom-based academic knowledge to students' personal leadership skills and their role in their communities following graduation. Through the BLP, students collaborate in building a campus community that values diversity and difference. Since candid discussions of diversity are an integral component of the program, the BLP provides a safe, structured space for the examination of difficult issues that often remain potent yet submerged in campus conversation. Finally, the BLP gives students an opportunity to serve their communities, both on campus and within the larger urban environment.

Implications: Adapting This Leadership Approach to Other Campuses

The fundamental elements of the BLP may be found or developed on most college campuses. Indeed, all campuses can claim talented staff and faculty who would value another opportunity to share their expertise, and students who seek leadership development opportunities and a program into which they can have significant input. In our experience, the most important resources in developing innovative leadership programs are open minds and a willingness to reconfigure existing assets in new ways.

The particular climate of each campus must determine the values, structure, and process of the new program, so it is essential to begin the planning process with an environment and needs assessment. The values of the SCM could be implemented on almost any campus, although this process, more than any other element of the BLP, requires careful planning and a commitment to a new mode of working with students, faculty, and, above all, student affairs colleagues.

Conclusion

The BLP, with its strong values base and simple yet powerful design, has quickly become an integral component of UCLA's leadership development efforts. With some modification to meet the needs and resources of individual campuses, this program may be used to complement or strengthen almost any campus's student programming efforts.

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Appendix 3: Annotated Social Change Model's 7 C's

The Social Change Model of Leadership Development

About the Model:

- Work began on this model in 1994
  - This model continues to be worked on, having undergone 3 versions already
- The initial research was done at the Higher Education Research Institute (UCLA)
- The model attempts to integrate already established leadership development concepts
- Provides for leaders who may not hold traditional roles of leadership, but rather want to make *positive change*
- A key concept of this model is that <u>leadership as a process.</u>

Goals of the Model:

- To enhance student learning and development; more specifically, to develop in each student participant greater:
  - Self-knowledge
  - Leadership Competence
- To facilitate positive social change at the institution or in the community. That is, to undertake actions which will help the institution/community to function more effectively and humanely.

Components of the Leadership Development Model:

The approach to leadership development for the Social Change Model is embedded in collaboration and concerned with fostering positive social change, the model examines leadership development from three different perspectives:

The Individual- What personal qualities are we attempting to foster and develop in those who participate in a leadership development program? What personal qualities are most supportive of group functioning and positive social change?

The Group- how can the collaborative leadership development process be designed not only to facilitate the development of the desired individual qualities (above) but also to effect positive social change?

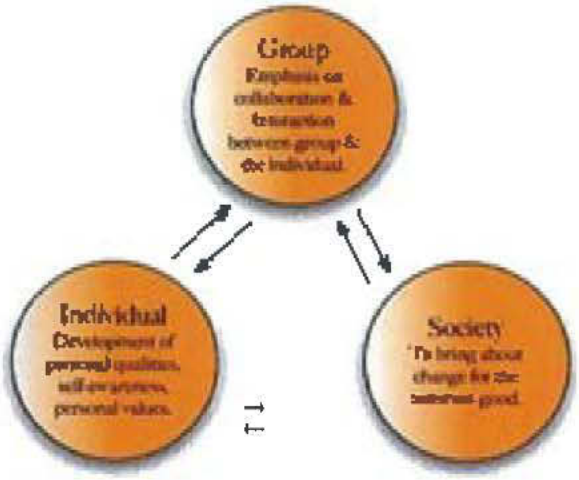
The Community/Society- Toward what social ends is the leadership development activity directed? What kinds of service activities are most effective in energizing the group and in developing desired personal qualities in the individual?

The 7 C's of Leadership:

It was determined based on the model being developed, that there are seven* critical values:

- Consciousness of Self
- Congruence
- Commitment
- Collaboration
- Common Purpose
- Controversy with Civility
- Citizenship
- *The 8th C- Change

The Social Change Model of Leadership Development



The 7 C's Defined:

Consciousness of Self:

- Being aware of the beliefs, values, attitudes and emotions that motivate one to take action
- Key to being able to develop consciousness of others

Congruence:

- Understanding and being consistent with one's own values, beliefs, strengths and limitations
- Interdependent with Consciousness of Self
- Congruency tests
  - Personal
  - Collective congruency

Commitment:

- The psychic energy that motivates the individual to serve and that drives the collective effort.
- Implies passion, intensity, and duration, directed both towards group activity and intended outcomes
- Requires knowledge of self

Collaboration:

- Leadership as a group process; relational
- Encourages group to transcend individual goals, interests and behaviors
- Vital that group members explore differences in individual values, ideas, affiliations, visions and identities

Common Purpose:

- To work with shared aims and values
- Enables the group to engage in collective analysis of the issues at hand and the task to be undertaken
- Best achieved when all members of the group share in the vision and participate actively in articulating the purpose and goals of the activity

Consciousness of Self:

- Difference will exist in the group; the differences can be accepted and resolved through open and honest dialogue
- Empathy must emerge the group members
- Conflicts need to be resolved but also integrated into the common purpose

Citizenship:

- Not simply membership, but active engagement in community
- Civic responsibility; what we do towards social change
- The practice of good citizenship should and needs to happen at every level of the model

The Social Change Model Challenge:

- "The model encourages highly participatory, non-hierarchical leadership, yet you will be perceived by most students as being in a position of power and status."
- Therefore, we must:
  - Model the model
  - Remember that we are the analysis that what this work will earn
- Continue to work on the model

Source: Astin, Helen S. and Alexander W. Astin. A Social Change Model of Leadership Development Guidebook Version III. The National Clearinghouse of Leadership Programs, 1996.

Appendix 4: Alumni Leadership Survey

2009 Engineering Alumni Leadership Survey Report

11/24/09 v1.4

College of Engineering

University of Wisconsin-Madison

Norm D. Doll, P.E., Adjunct Faculty

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Executive Summary

A survey of College of Engineering alumni receiving a B.S. degree over the past ten years was created to gage alumni's leadership experiences while at the UW-Madison and post-graduation. It was sent out electronically three times during August of 2009 to a list of alumni with known email addresses. The results of the survey were then summarized with specific findings and recommendations being pulled out in order to enhance leadership development opportunities for future engineers.

It is recommended that the CoE should focus on the three most important experiences: internships/co-ops, student organizations, and design classes. Additionally attention should be paid to development of a mentoring program involving students as both mentees and mentors and educating students on and preparing them with professional skills for the workplace. A further consideration should be given to formal leadership education i.e., classes, service learning and experiential opportunities, certificate, etc. There have been 3 leadership classes offered in CoE, one in Civil and Environmental Engineering, one in Industrial and Systems Engineering, and the Dean's Leadership Class (InterEgr 400). More thought on how to best combine formal leadership education and experience to lay a foundation for life-long leadership development and growth is needed. Collaborate with other units on campus such as the School of Business should also be explored.

The results of this survey are intended to serve as a baseline for creating co-curricular leadership activities. Periodic assessment on overall graduate's leadership experience and outcomes will be compiled to evaluate the effectiveness of the leadership opportunities and experiences at the UW-Madison CoE. It is expected that new leadership activities and experiences will be created based upon student feedback and suggestions.

Purpose

The 2009' Engineering Alumni Leadership Survey was developed to gage College of Engineering (CoE) alumni's leadership experiences while at the UW-Madison and post-graduation. The results are intended to help the college focus on ways to enhance leadership development opportunities for future engineers.

Methodology

An ad hoc committee met to examine what leadership outcome baseline data existed within the CoE on the leadership outcomes of our engineering B.S. graduates over the last ten years. A survey was developed and administered through the use of the Wisconsin Alumni Association (WAA) alumni lists to all Bachelor of Science (B.S.) engineering graduates awarded between 1998 and 2008, with current email addresses.

The WAA list included 6,370 known graduates with a BS in Engineering over the past ten years. Of these, 2,279 did not have an active email address on file. The survey was sent out three times, on 8/2/09, 8/18/09, and 8/26/09, to a list of 4,091 engineering BS alumni. Four hundred and eighty-seven (487) emails came back undeliverable while 602 graduates responded. Thus, this survey had a 9.5% response rate from all BS Engineering graduates and a 17.3% response rate from BS engineering graduates receiving the survey.

Approach

The main focus of this survey was to find ways to enhance leadership development opportunities for future CoE students. To do so, both the most important experiences and a couple of areas that should be focused on, according to the respondents, were identified.

CoE alumni receiving the survey were asked sixteen questions focusing on their leadership development and experiences during their academic career and on the volunteer activities they have engaged in since graduation. A sample questionnaire is provided in Appendix A. Results are presented in Appendix B. A summary of the open-ended responses appears in Appendix C.

Findings and Recommendations

From the survey results, the three most important experiences that alumni had as students were: 1. internships and/or co-ops, 2. involvement in student organizations, and 3. participation in a senior-level capstone design class. Since graduating, CoE alumni have used their education and experiences as leaders in both the professional and volunteer world. A high majority of respondents reported having applied their undergraduate education in solving real-world problems since graduation. Leadership education and development have continued to be an important part of many alumni's priorities as over half of respondents have taken advantage of opportunities to continue their learning in this area. Roughly one fifth of alumni are currently in a leadership role in a professional or technical society while nearly one third have served on a board or committee in a professional and/or non-profit organization since graduation.

Volunteering has also been a part of many alumni's lives as two thirds have lent a hand to a community service project or organization since graduation and over a third are currently involved in a community-based organization. Respondents have contributed to a wide range of organizations including those focused on public service, education, neighborhood, families, etc. with over two thirds giving at least four hours of their time a month to an organization. On average, those that participated in service activities contributed approximately 8 hours a month of their time. The main reasons for volunteering included: wanting to give back to the community, helping those in need, believing in the organization's purpose and mission, and often for networking and socializing outside of work.

Internships/Co-ops

Internships and/or co-ops provided the opportunity to develop leadership knowledge and skills for two-thirds of the respondents. They provided the best real-world experience possible to these students. Through their employment, the respondents were able to use their schoolwork and apply it to the workplace. Several alumni even reported having management and supervisory positions. These jobs placed large responsibilities on the students, building up their confidence and requiring them to work effectively with

diverse peer groups. Several respondents felt that internships and co-ops provided such a large benefit that they should be mandatory.

Real world experiences through student employment were clearly important to many alumni. Finding internships and co-ops and realizing the benefits from them are the responsibility of each individual student. For a variety of reasons, not everyone is able to participate in an internship or co-op during their college career, however, there were several suggestions made as to how real world experiences could be better included into a student's learning. Some of the ideas offered include job shadowing, industry tours, and design projects for local businesses and non-profit organizations.

Student Organizations

The most important co-curricular leadership development opportunities for respondents while they were students came through their participation in student organizations. The opportunity to develop leadership knowledge and skills came mainly though being an officer or leader in an organization or through participating in that organization's student competitions. By being an officer or leader, respondents were able to learn many different professional skills such as event planning, networking, organization, budgeting, and communication. They had to work with and motivate a large and diverse group of peers while learning from their mistakes. According to more than half of the respondents, the most important category of student organizations for developing leadership knowledge and skills was discipline-specific organizations such as American Society of Mechanical Engineers (ASME), American Society of Civil Engineers (ASCE). More than a quarter of respondents also felt that service/outreach and student competition teams gave them leadership development opportunities.

Though not limited to student organizations, student competitions are often related to a student organization such as the Steel Bridge Team and Concrete Canoe competitions, which are connected to ASCE. There were real-world time-constraints with the flexibility to achieve those results though their own designs and the ever-present risk of failure. Respondents also reported that student competitions helped them to develop their work ethic. They also reported that these experiences gave them an opportunity to work with a diverse group of their peers.

Many respondents felt that both student organizations and competitions provided some of the most significant leadership experiences they had as students. Alumni made several recommendations as to how to make these experiences better and get more students involved. It was felt that there should be more promotion of the various student organizations and an encouragement for students to join them earlier in their college career. Additionally, several alumni suggested better funding for student organizations and having more support from engineering faculty and staff. Classroom activities could possibly be linked to the student competitions as a way to benefit both the competition team and the class members with a real world application of the learning. For many respondents, student organizations and competitions were a valuable part of their college experience providing many social, professional skills, and leadership development opportunities.

Design Classes

While student organizations were important outside the classroom, design classes were the most important leadership development opportunity inside the classroom. According to respondents, these design courses emulated the real world work environment of a design project giving them a feel for the teamwork and management required to complete a project from start to finish. These classes developed the respondent's abilities to delegate, manage resources such as time and money, work as a team, and deal with conflicts. Coupled with an increased freedom unlike other classes, the respondents developed a much greater understanding of team interactions and dynamics and reliance on others to get a job done.

Though design classes were the most important leadership development opportunity related to academics and coursework for many respondents, they often did not take one of these courses until their senior year. It was felt by many alumni that the experiences offered by classes such as the capstone seminars should play a larger role in earlier coursework. Suggestions were made that there should be more design classes and open-ended labs with more team development projects and exercises in the classroom. Respondents liked the real-world problem solving and applications of their schoolwork as

opposed to simple memorization. The key to developing leadership skills is to get students together doing cooperative group work earlier and more often.

Mentoring

Since graduating, more than two-thirds of all engineering alumni have mentored a student or colleague. Additionally, nearly half of respondents are currently involved in these activities and reported being either a coach or mentor. Given the number of alumni who have engaged in mentoring activities, it is of interest that only slightly more than half felt that the College of Engineering significantly contributed to their ability to coach, mentor, and develop others. Mentoring is clearly an area that needs to be focused on more, as evident by the survey responses and respondent suggestions. Suggestions included offering mentors for students from industry, alumni, professors, graduate students, and upperclassmen. The best way to learn to be a mentor is both to have one and, then with time, become one. Currently some of the available opportunities to be in a mentorship position include being a tutor, Teaching Assistant (TA), or a house fellow. Since only a small percentage of the student population takes advantage of these opportunities, one of the best suggestions made was to have upperclassmen and graduate students serve as mentors to younger students. A mentoring program set up in this manor would benefit both the mentee (new to college and still adjusting), and the mentor, learning the skills necessary to be a good advisor to others.

Professional Skills

In addition to mentorship, the other main area that respondents felt needed improvement was the teaching of professional skills. These include skills such as communication, both through presentations and interactions in non-technical environments, organization, management, and general business skills. One of the most important skills mentioned by respondents was that of risk assessment and decision-making. According to alumni, only half felt that the College of Engineering significantly contributed to their ability to assume risk. Currently, some of the best opportunities offered to students to gain experience with decision making and assuming risk are through

the three previously mentioned important opportunities: internships and co-ops, student organizations, and design classes.

Another suggestion related to skill development that bears mentioning has to do with business. Several respondents suggested teaching students business skills such as finance, marketing, business planning, and the business process. Respondents thought that it might be a good idea to create tie-ins with the School of Business in order to better teach some of these skills.

Next Steps

The results of this survey will serve as a baseline for creating co-curricular leadership activities. It is expected that new leadership activities and experiences will be created based upon student feedback and suggestions.

Appendix A: Questions Asked

The 09' Engineering Alumni Leadership Survey was presented to respondents through a web based survey. 18 questions were asked and were presented to respondents as follows:

Engineering Alumni Leadership Survey
Dear Engineering Graduate:

Hello from the UW-Madison. The College of Engineering Dean and Faculty are seeking your input as a CoE alumni regarding your leadership experiences while at the UW-Madison and post-graduation. Below is a brief survey regarding your leadership development experiences that will help us focus on ways to enhance leadership development opportunities for future engineers. Please take a few moments to complete the survey.

If you have questions, please contact Dean Paul Peercy or Professor Jeff Russell at Russell@engr.wisc.edu.

Thanks, and ON WISCONSIN!

1. Please indicate to what extent your overall College of Engineering (CoE) educational experience contributed to your skills and knowledge in the following ways.

	Very Significant	Significant	Neutral	Insignificant	Very Insignificant
An ability to create and articulate a vision.					
An ability to organize individuals or groups to achieve a s ecific oal.					
An ability to assume risk.					
An ability to overcome adversi .			○		
An ability to create effective and productive relationshi s.					
An ability to coach, mentor and develop others.					

2. Which CoE experience(s) provided you the opportunity to develop leadership knowledge and skills (check all that apply)?
   - ☐ Student organization

- ☐ Student competitions
- ☐ Senior level capstone design class
- ☐ Internships and/or co-ops
- ☐ Study abroad experience
- ☐ Research experience
- ☐ Other, please specify

3. If you indicated **student organizations** in your response to question 2, please indicate which category of student organization(s) gave you the opportunity to develop leadership skills and knowledge (check all that apply).
   If not, please skip to question 4.
   - ☐ Student Government
   - ☐ Service/Outreach
   - ☐ Discipline Specific
   - ☐ Student Competition Teams
   - ☐ Affinity
   - ☐ Fraternity or Sorority
   - ☐ Honors
   - ☐ Other, please specify

4. If you indicated **student competitions** in your response to question 2, please indicate which competition (check all that apply).
   If not, please skip to question 5.
   - ☐ School's Prize for Creativity
   - ☐ Steuber Prize
   - ☐ Tong Prototype
   - ☐ Wunsh Award
   - ☐ Other, please specify

5. What was the most significant leadership experience you had as a student at UW-Madison, and why?
   Please Comment

6. Do you have a specific suggestion on how your UW-Madison experience could have better prepared you in your leadership development?
Please Comment

7. Which of the following have you done since graduation?
   - ☐ Served on a board or committee in a professional and/or non-profit organization.
   - ☐ Volunteered for a community service project or organization.
   - ☐ Served as an elected official for a public service organization.
   - ☐ Mentored a student or colleague.
   - ☐ Applied your undergraduate education in solving real-world problems in your sphere of influence.
   - ☐ Other, please specify

8. In the last 5 years have you taken advantage of any leadership education or development opportunities?
   Yes No

9. Are you currently in a leadership role in a professional or technical society?
   If not, please skip to question 11.
   ○ Yes ○ No

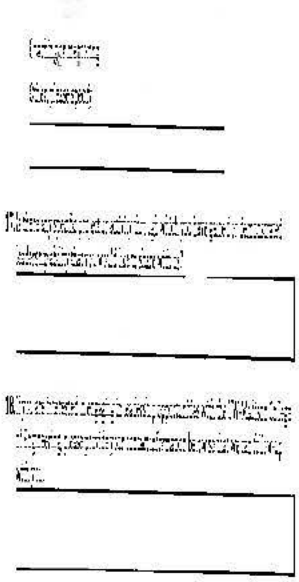
- [ ] Public Service
- [ ] Social Justice
- [ ] Environmental Protection
- [ ] Other, please specify

13. How many organizations are you involved with where you contribute at least 4 hours a month?
    - ( ) 1
    - ( ) 2
    - ( ) 3
    - ( ) 4
    - ( ) 5 or more

14. How many hours a month would you estimate you participate in service activities?

15. Why are you involved in these organizations (check all that apply)?
    - [ ] To help people in need.
    - [ ] To network and/or socialize with others outside of work.
    - [ ] A friend asked you to participate.
    - [ ] To learn more about a particular issue and/or explore new interests.
    - [ ] To give back to the community.
    - [ ] To network and gain experience in your field.
    - [ ] The organization has dynamic leadership.
    - [ ] You believe in the organization's purpose and mission.
    - [ ] Other, please specify

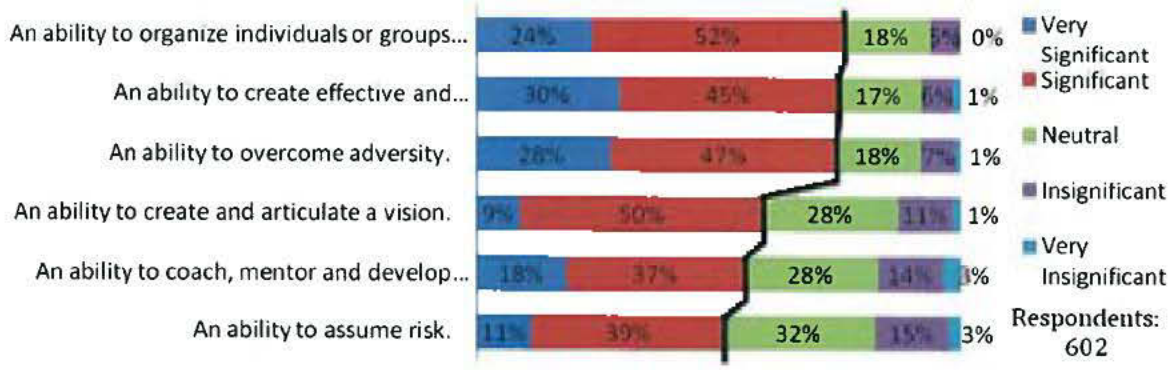
16. What types of activities are you engaged in (check all that apply)?
    - [ ] Organizational governance (i.e., board or committee member)
    - [ ] Fundraising for various causes
    - [ ] Education and advocacy
    - [ ] Community and/or economic development
    - [ ] Service work



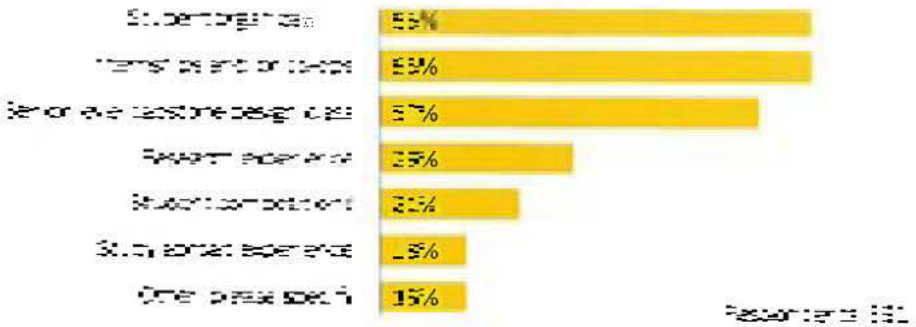
Appendix B: Results

The 09' Engineering Alumni Leadership Survey was sent out three times, on 8/2, 8/18, and 8/26, to a list of 4,091 names of engineering BS alumni going back over the past ten years. 487 came back undeliverable with 602 responding. There are 6370 known BS engineering grads over the past ten years. 2279 did not have a known email address. Thus, this survey had a 9.45% response rate for all BS engineering grads and a 17.26% response rate for BS engineering grads receiving the survey. The results follow:

1. Please indicate to what extent your overall College of Engineering (CoE) educational experience contributed to your skills and knowledge in the following ways:



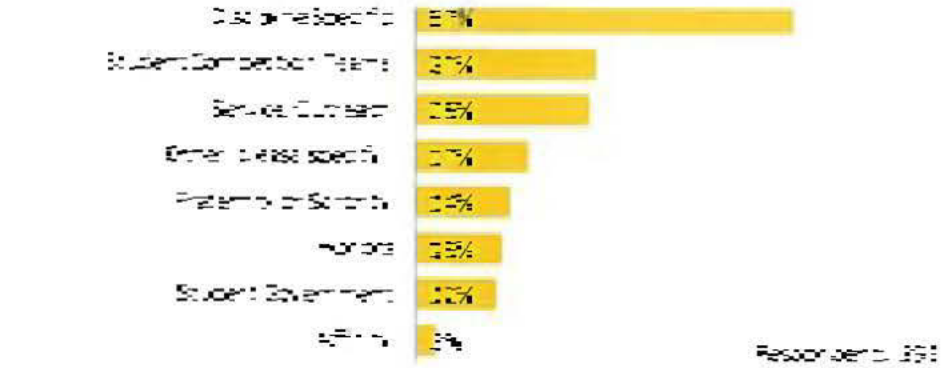
2. Which CoE experience(s) provided you the opportunity to develop leadership knowledge and skills (check all that apply)?



Top other responses

- Class Projects
- Teaching/Student Assistant
- Tutoring
- Various Clubs/Teams
- Design Courses
- Study Groups
- Leadership

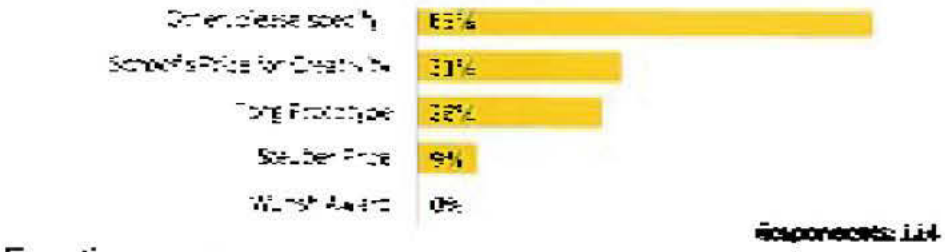
3. If you indicated student organizations in your response to question 2, please indicate which category of student organization(s) gave you the opportunity to develop leadership skills and knowledge (check all that apply).



Top other responses:

- Sports
- Diversity
- Planning Committees
- Religious
- Professional
- Journalism

4. If you indicated student competitions in your response to question 2, please indicate which competition (check all that apply).



Top other responses:

- SAE (Formula/Mini-Baja/Snowmobile snowmobile) – (17 responses)
- Future Car/Truck/Energy Challenge – (13)
- Concrete Canoe – (13)
- Steel Bridge – (12)
- Expo – (11)
- ASME – (6)
- Zero Gravity – (4)
- Hybrid Vehicle – (3)
- Summit Business Plan – (2)
- IEEE Robot – (2)

5. What was the most significant leadership experience you had as a student at UW-Madison, and why?

There were 459 respondents. Their experiences were broken up into different categories with the various reasons following:

Internship/Co-op (large responsibilities, real world experience, apply schoolwork to the workplace, build confidence, management/supervising roles, diverse peer group)

Senior Design Class/Capstone (work-like environment, peer relationships, provided technical and leadership skills, freedom, increased responsibilities, dedication, work with other group leaders, time management, learning to delegate, lead by example, build confidence in technical and communicative abilities, project management, scheduling conflicts, interdisciplinary design challenges, work outside of specialty)

Officer/leader in a student org. (budgeting, develop events/goals, work with/motivate others, sponsor/speaker interaction, networking, outreach, large/diverse group, provide a vision, organizational skills, presentation skills, learn from mistakes)

Group projects (learn to work with others skills and weaknesses, team exercise, organizational skills, build productive relationships, team dynamics)

Student competitions (real world pressure, demand for results, freedom of design, interaction with diverse group, see a project from design to completion, time constraints, goals other than schoolwork, develop work ethic, recruit members, deal with many personality types and differing opinions, risk of failure, lead by example)

Student employment (organization skills, balance work with school, management opportunities)

Graduate research project (work with UW faculty and industry professionals)

Event planner (EXPO/competitions) (organization, freedom to make decision, strategy development, team work, recruit volunteers, delegation)

Tutoring/TA/SA (interact with people with different traits and work/study styles, patience, be a mentor, show different ways to approach a problem, lead class, share gained knowledge, build confidence, lead discussions and assignments)

Research work (interaction with company officials, freedom to accomplish task, delegation skills, confidence builder, real world work)

LeaderShape (network with other campus leaders)

House Fellow (plan events, enforce rules, mediate conflict, supervise, build community, provide guidance, deal with many different personalities)

ROTC (leadership training)

Sports Teams (management, logistics, team interaction, gain trust)

Study Abroad (new environment, peers from another culture)

Student org. (Work with individuals without engineering background)

6. Do you have a specific suggestion on how your UW-Madison experience could have better prepared you in your leadership development?

There were 347 respondents. Their suggestions were broken up into several categories with a summary of suggestions listed below:

Mentor

- Mentorship program with upperclassmen/grad students to freshman
- More guidance from professors
- Learn how to mentor someone professionally
- A more defined program
- Mentors from the industry/alumni

Class Work

- More design project and open-ended labs.
- Randomly assigned teams instead of student picked groups.
- More team development projects/exercise
- More hands on classroom experience
- Smaller class sizes in early core classes
- More real world problem solving and application, less memorization
- Make everyone a group at least once
- Bring foreign and local students together better
- Tie in classes with engineering competitions
- Interdisciplinary/cross-functional projects

New classes

- Leadership or management (possibly mandatory)
- Semester course with real client
- Business plan, financial skills, marketing
- Business school tie-in, business leadership
- More EPD classes
- Project management
- Human resources
- Organizational behavior

Skills

- Earlier emphasis on communication and leadership
- Communication skills for interacting in a non-technical environment
- Seminar focused on negotiating, facilitating meetings, problem solving, creativity, leadership, ethics, etc.
- More formal project management training
- Soft skills
- Organizational tools
- Work documentation
- Effective listener
- Public speaking
- Conflict resolution
- Business process

- Risk assessment, decision making
- Focus on leadership skills

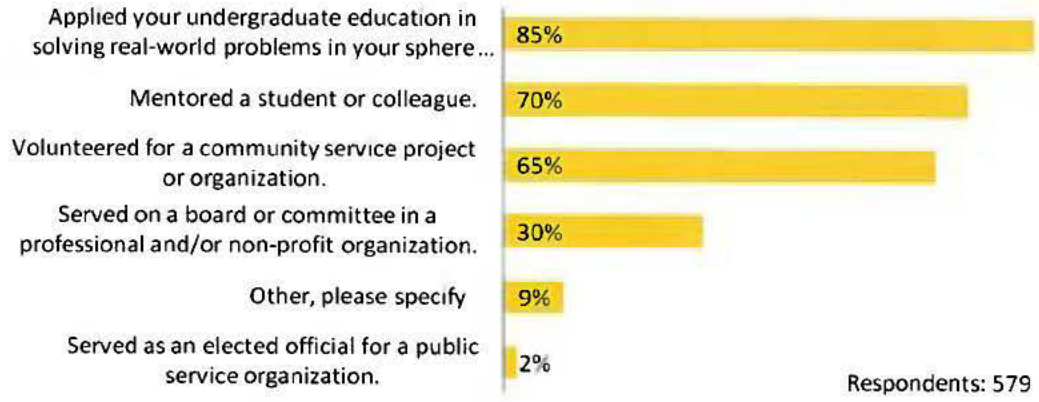
Student Orgs

- Encouragement to join them early
- Better promotion/funding
- More support from staff
- Partner with other campus orgs

Experience

- Mandatory co-op/internship
- Job shadowing, industry tours
- Interaction with local companies
- Design project with local industry
- Bring in industry professionals/alumni
- Promote LeaderShape, offer during winter/spring break

7. Which of the following have you done since graduation?



Top other responses:

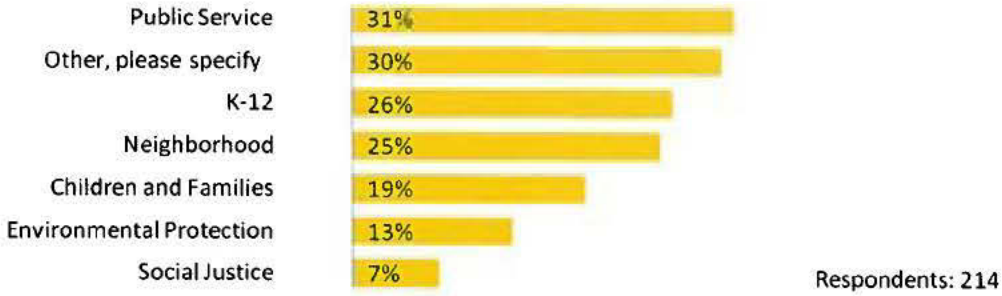
- Grad school
- MBA
- PhD
- Started Business
- Leadership/Management

8. In the last 5 years have you taken advantage of any leadership education or development opportunities?

9. Are you currently in a leadership role in a professional or technical society?

11. Are you presently involved in any community-based organizations?

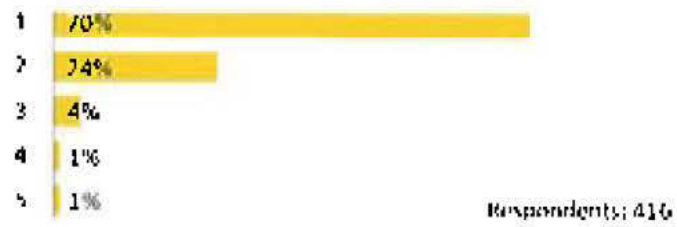
12. If you answered yes to question 11, please indicate which type of community-based organization you are involved in (check all that apply).



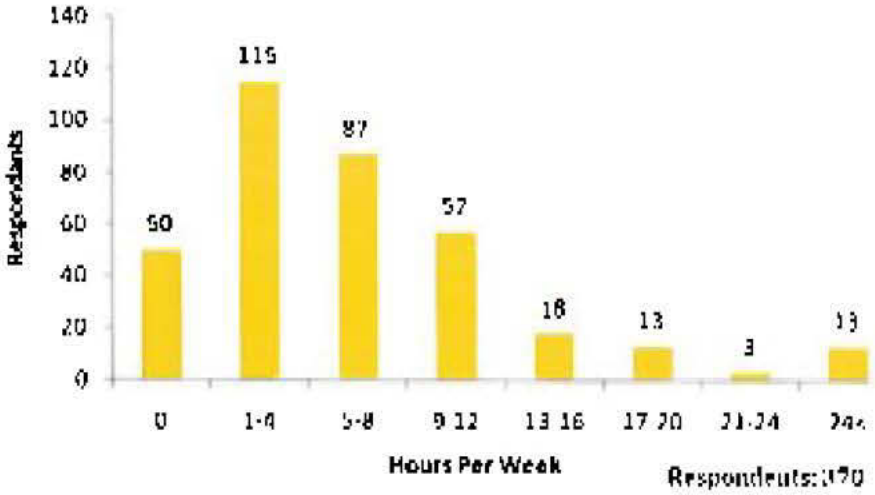
Top other responses:

- Religious
- Athletic
- Education (teaching)
- Aid (Habitat for Humanity, Humane Society, Homeless shelter, Food Pantry)

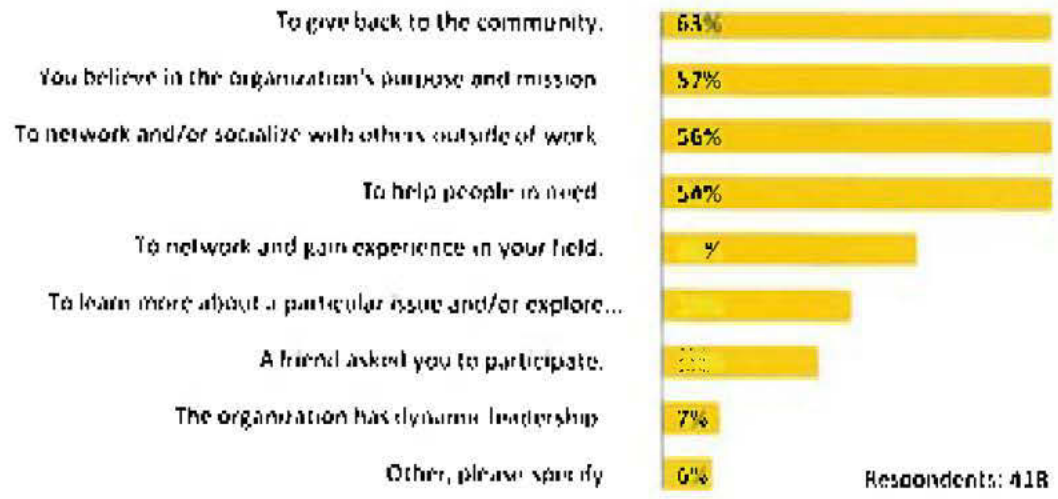
13. How many organizations are you involved with where you contribute at least 4 hours a month?



14. How many hours a month would you estimate you participate in service activities?



15. Why are you involved in these organizations (check all that apply)?



Top other responses:

- Educate the youth
- Help the environment

16. What types of activities are you engaged in (check all that apply)?

Top other responses:

- Environmental
- Volunteer

17. Is there any specific project or activity through which you have gained or demonstrated leadership ability that you would like to share with us?

Top responses:

- Habitat for Humanity
- Humane Society
- AmeriCorps/Peace Corps
- Leadershape
- Burrill Business Plan
- Mentoring
- Student Competitions
- Sports Coaching
- Military Service
- School Volunteering
- Engineers Without Borders
- Big Brothers, Big Sisters
- Professional Societies

Respondents: 117

Appendix C: Question Extracts

From the results of the 09' Engineering Alumni Leadership Survey, certain information could be pulled out from each question's responses. A summary of what could be extracted from each question follows:

1. *Please indicate to what extent your overall College of Engineering (CoE) educational experience contributed to your skills and knowledge in the following ways:*

   Around three fourths of respondents felt that their COE experience at least significantly contributed to their abilities to organize individuals or groups, create effective and productive relationship, and overcome adversity. Fewer (59%) thought that COE significantly contributed to their ability to create and articulate a vision. The abilities to assume risk and to coach, mentor and develop other were significantly contributed to by COE for only roughly half of respondents, somewhat surprising.

2. *Which CoE experience(s) provided you the opportunity to develop leadership knowledge and skills (check all that apply)?*

   The three most chosen experiences were student organizations (65%), internships and/or co-ops (65%), and senior level capstone design class (57%) all of which involved interaction with other students/professionals and an applied use of the respondents engineering education.

   Student competition (21%) may have been included into respondent's answers for student organizations. Student competition teams are a large part of many student organizations and respondents may have associated them together as can be seen with the results of question 3.

3. *If you indicated student organizations in your response to question 2, please indicate which category of student organization(s) gave you the opportunity to develop leadership skills and knowledge (check all that apply).*

   Discipline specific (57%) organizations were chosen the most by far, while affinity (3%) organizations were almost not chosen at all. Around one quarter of respondents also indicated student competition teams (27%) and service/outreach (26%) were important.

4. *If you indicated student competitions in your response to question 2, please indicate which competition (check all that apply).*

   Other responses (69%) made up the majority with the top other competitions involving construction of something physical be it a car, bridge, or canoe.

5. *What was the most significant leadership experience you had as a student at UW-Madison, and why?*

This is one of the two most important questions of this survey since it provides a direct response and opinion from the respondents.

The most significant leadership experiences, according to respondents, were ones that included real world experience, increased responsibilities, group work and interaction, organizational skills, etc. The most commonly responded experiences can be grouped into the categories of senior design class/capstone, internship/co-op, officer/leader in a student org, and student competitions.

The most important reason these experiences were significant was by far the interaction with peers in both educational and professional environments. According to the respondents, these interactions were able to build abilities such as group work, team building, presentation skills, delegation, diverse group interaction, and built confidence in oneself.

Many people responded that group projects were the most significant leadership experience they had be it for an in class project or for a design class/capstone. Group projects provided respondents the ability to have that peer interaction, specifically the design classes where many responsibilities were often placed on individual group members. These projects also provided a degree of freedom, which was an important aspect for several of the responses.

Design classes were also able to emulate a real world work environment, which was another important point for many respondents. They appreciated having some experience before leaving school be it from an internship/co-op or design class. Respondents felt more prepared to begin employment and had a better sense of what was expected of them.

A direct leadership positions through student competitions and organizations was another significant experience for many respondents. They were able to work towards many different goals on something that they were passionate about, in the process developing a variety of leadership and work related skills.

6. *Do you have a specific suggestion on how your UW-Madison experience could have better prepared you in your leadership development?*

This is one of the two most important questions of this survey since it provides a direct response and opinion from the respondents.

Suggestions from respondents were generally among three different categories; class related, skills related, or out of class activities. Most of the suggestions focused on what the respondents thought should be taught such as new classes, different teaching methods for classes, and specific skills which should be emphasized more through classes. Some of the more common ideas for new classes included business courses with possible tie-ins with the School of Business, leadership/management courses, a human resources course, and additional EPD (engineering professional development) courses.

In terms of class work, the overall suggestions pointed towards the use of more group projects/exercise. These could be design projects or open-ended labs, but specifically activities that involved teamwork. Respondents also suggested classroom activities that emphasized both real world and hands on experiences. They appreciated applications of what was being taught rather than pure memorization. Smaller class sizes would also be beneficial, especially in earlier core classes.

There were several different skill sets that respondents would have liked to have learned better. These were generally basic office soft skills with an emphasis on communication skills. These included public speaking and dealing with people outside on one's specialty.

The idea of mentorship was mentioned several times. Respondents suggested having professors/alumni/industry member/upperclassmen act as mentors to students and specifically incoming freshman.

Continuing with the suggestions of real world experience, respondents thought it was very important to have an internship/co-op, enough so that several thought they should be mandatory. Suggestions were also made to get students interacting with local companies through activities like job shadowing, industry tours, or design projects.

Lastly, there were several suggestions specifically mentioning student orgs. Respondents felt that there could be more promotion and direct interaction from the staff. They also said that the student orgs on campus should be promoted earlier and more often to since they provided a great leadership opportunity to many respondents. Additional funding was also suggested.

7. *Which of the following have you done since graduation?*

   Most respondents (85%) have utilized their undergraduate education in problem solving. Roughly two thirds have given back through mentoring a student or colleague and/or volunteering for a community service project or organization. Less than one third served on a board or as an elected official.

8. *In the last 5 years have you taken advantage of any leadership education or development opportunities?*

   More than half (58%) of respondents have continued to grow their leadership skills over the last 5 years through either education or development opportunities.

9. *Are you currently in a leadership role in a professional or technical society?*

   Most respondents (83%) are not currently involved in a leadership role in a professional or technical society. This number may actually be higher as can be seen with the results to the follow up question 10.

10. *If you answered yes to question 9, please describe your leadership role.*

It is recommended that question 10 be discarded based on the responses received. The question asked about the respondent's leadership role in a professional or technical society, however, most respondents simply reported any leadership role that they held, often work related. Most of the responses received did not answer the originally posed question.

11. *Are you presently involved in any community-based organizations?*

Only roughly one third of respondents are presently involved in any community-based organizations.

12. *If you answered yes to question 11, please indicate which type of community-based organization you are involved in (check all that apply).*

The respondents involved with community-based organizations are involved with a wide range from public service and working in the neighborhood to education and working with families. No particular type of organization stands out, though social justice and environmental protection ranked lower than the other options with 7% and 13% respectively, compared with an average of 25-30% for the other options.

13. *How many organizations are you involved with where you contribute at least 4 hours a month?*

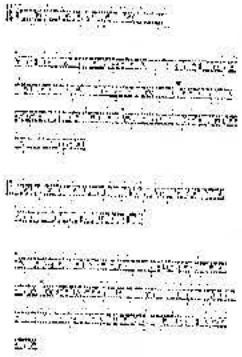
Roughly two thirds of survey takers responded to contributing at least 4 hours a month to an organization, though it should be noted that an option for not being involved was not provided. Thus it is not known whether or not the 186 people who skipped this question are involved with organizations. It is known, however, that at least two thirds are. Of those who responded, 70% are involved with only 1 organization with another 25% involved in 2. The remaining 5% were involved with 3 or more.

14. *How many hours a month would you estimate you participate in service activities?*

At least half of all the survey takers participate in service activities at least 1 hour per month. 232 people skipped this question so whether or not they participate in service activities and how much they do is not known. Of those who did respond to participating in service activities they averaged 8.4 hours per month with a median of 5 hours.

15. *Why are you involved in these organizations (check all that apply)?*

Respondents were involved with theses organizations for a wide variety of reasons. Most of the top responses were about others and not the respondent including giving back to the community, helping people in need, and believing in the organization's purpose and mission, though respondents did say that theses organizations were a good opportunity to network and socialize outside of work. Some were involved to gain experience and learn more. Of note with respect to leadership, very few were involved in these orgs because the org had dynamic leadership.



Appendix 5: EBI Benchmarking Survey

Addendum I

EBI Survey Instrument and the EBI Institutional Specific Questions (ISQs) that we are distributing for 2008 09.

Gender:

Answers	Column	Value
Male	D001	0
Female	D001	1

U.S. ethnic group or nationality:

Answers	Column	Value
Multiracial American	D002	0
African American	D002	1
Native American	D002	2
Asian American	D002	3
Hispanic American	D002	4
White American	D002	5
Non-U.S. citizen or Permanent resident	D002	6
Other	D002	7

What was your SAT or ACT score? (highest score if taken more than once)

Answers	Column	Value
SAT 810 / ACT 17 or below	D003	0
SAT 820 880 / ACT 18 19	D003	1
SAT 890-970 / ACT 20-21	D003	2
SAT 980 1030 / ACT 22	D003	3
SAT 1040 1100 / ACT 23-24	D003	4
SAT 1110-1170 / ACT 25-26	D003	5
SAT 1180 1240 / ACT 27-28	D003	6
SAT 1250 1310 / ACT 29-30	D003	7
SAT 1320 1420 / ACT 31 32	D003	8
SAT 1430 / ACT 33 or above	D003	9
Didn't take or don't remember	D003	10

What is your University cumulative GPA? (4.0 scale)

Answers	Column	Value
Below 2.2%	D004	0
2.2% to 2.49	D004	1
2.50 to 2.74	D004	2
2.75 to 2.99	D004	3
3.00 to 3.24	D004	4
3.2% to 3.49	D004	5
3.50 to 3.74	D004	6
3.7% to 4.00	D004	7
Not on 4.0 scale	D004	8

Average number of hours worked per week during the past academic year while attending school: * Required

Answers	Column	Value
None	D005	0
1 - 10	D005	1
11 - 20	D005	2
21 - 30	D005	3
31 - 40	D005	4

More than 40	D005	5

Average number of hours studied per week during the past academic year: * Required

Answers	*Column*	*Value*
0 - 5	D006	0
6 - 10	D006	1
11 - 15	D006	2
16 - 20	D006	3
21 - 25	D006	4
26 - 30	D006	5
More than 30	D006	6

When did you officially enter the School of Engineering? * Required

Answers	*Column*	*Value*
Freshman year	D007	0
Sophomore year	D007	1
Junior year	D007	2
Senior year	D007	3

Engineering Major/area of primary interest: (if double major, select major of greatest importance) * Required

Answers	*Column*	*Value*
Aerospace	D008	0
Agricultural	D008	1
Architectural	D008	2
Bioengineering	D008	3
Ceramic	D008	4
Chemical	D008	5
Civil	D008	6
Computer	D008	7
Computer Science/Software	D008	8
Construction	D008	9
Electrical/Electronic	D008	10
Engineering Mechanics	D008	11
Engineering Management	D008	12
Environmental	D008	13
Geological/Mining	D008	14
Industrial	D008	15
Manufacturing	D008	16
Marine/Ocean/Naval	D008	17
Materials/Metallurgical	D008	18
Mechanical Engineering	D008	19
Nuclear	D008	20
Petroleum	D008	21
Info Tech	D008	22
Other Eng Tech	D008	23
Other	D008	24

Plans after graduation: * Required

Answers	*Column*	*Value*
Full-time education	D009	0
Full-time work	D009	1
Work and Part-time education	D009	2
Other	D009	3

If planning to be employed:

Answers	Column	Value
Have not interviewed	D010	0
Interviewed, no offers	D010	1
Offered position, declined	D010	2
Offered position, not yet accepted	D010	3
Offered position, accepted	D010	4

Percentage of instructors in your required courses you rate as excellent: * Required

Answers	Column	Value
None	D011	0
1 to 20%	D011	1
21 to 40%	D011	2
41 to 60%	D011	3
61 to 80%	D011	4
81 to 100%	D011	5

Percentage of instructors in your required courses you rate as poor: * Required

Answers	Column	Value
None	D012	0
1 to 20%	D012	1
21 to 40%	D012	2
41 to 60%	D012	3
61 to 80%	D012	4
81 to 100%	D012	5

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Section 1 - *Response Key Section*

PLEASE READ BEFORE CONTINUING.

Definition of major: Course work in your Engineering major

Instruction and Faculty in your Major Course Work

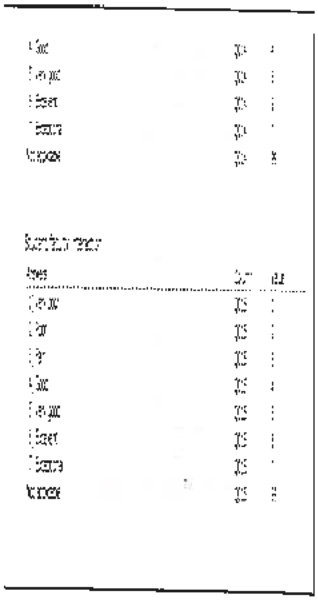
Quality of:

Teaching

Answers	Column	Value
[1] Very poor	QC13	1
[2] Poor	QC13	2
[3] Fair	QC13	3
[4] Good	QC13	4
[5] Very good	QC13	5
[6] Excellent	QC13	6
[7] Exceptional	QC13	7
Not applicable	QC13	99

Feedback on assignments (other than grades)

Answers	Column	Value
[1] Very poor	QC14	1
[2] Poor	QC14	2
[3] Fair	QC14	3



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Section 1 - Response Key Section

Satisfaction with quality of teaching in <u>required</u> course work: (if course not taken on this campus, select "not applicable")

Calculus

Answers	*Column*	*Value*
(1) Very dissatisfied	Q016	1
(2) Moderately dissatisfied	Q016	2
(3) Slightly dissatisfied	Q016	3
(4) Neutral	Q016	4
(5) Slightly satisfied	Q016	5
(6) Moderately satisfied	Q016	6
(7) Very satisfied	Q016	7
Not applicable	Q016	99

Differential Equations

Answers	*Column*	*Value*
(1) Very dissatisfied	Q017	1
(2) Moderately dissatisfied	Q017	2
(3) Slightly dissatisfied	Q017	3
(4) Neutral	Q017	4
(5) Slightly satisfied	Q017	5
(6) Moderately satisfied	Q017	6
(7) Very satisfied	Q017	7
Not applicable	Q017	99

Physics

Answers	*Column*	*Value*
(1) Very dissatisfied	Q018	1
(2) Moderately dissatisfied	Q018	2
(3) Slightly dissatisfied	Q018	3
(4) Neutral	Q018	4

(5) Slightly satisfied	Q018	5
(6) Moderately satisfied	Q018	6
(7) Very satisfied	Q018	7
Not applicable	Q018	99

Chemistry

Answers	*Column*	*Value*
(1) Very dissatisfied	Q019	1
(2) Moderately dissatisfied	Q019	2
(3) Slightly dissatisfied	Q019	3
(4) Neutral	Q019	4
(5) Slightly satisfied	Q019	5
(6) Moderately satisfied	Q019	6
(7) Very satisfied	Q019	7
Not applicable	Q019	99

Section 2 - Response Key Section

Satisfaction with:

Grades in **major** courses accurately reflecting your level of performance

Answers	*Column*	*Value*
(1) Very dissatisfied	Q020	1
(2) Moderately dissatisfied	Q020	2
(3) Slightly dissatisfied	Q020	3
(4) Neutral	Q020	4
(5) Slightly satisfied	Q020	5
(6) Moderately satisfied	Q020	6
(7) Very satisfied	Q020	7
Not applicable	Q020	99

Accessibility of **major** course instructors outside of class

Answers	*Column*	*Value*
(1) Very dissatisfied	Q021	1
(2) Moderately dissatisfied	Q021	2
(3) Slightly dissatisfied	Q021	3
(4) Neutral	Q021	4
(5) Slightly satisfied	Q021	5
(6) Moderately satisfied	Q021	6
(7) Very satisfied	Q021	7
Not applicable	Q021	99

Responsiveness of **major** course instructors to student concerns

Answers	*Column*	*Value*
(1) Very dissatisfied	Q022	1
(2) Moderately dissatisfied	Q022	2
(3) Slightly dissatisfied	Q022	3
(4) Neutral	Q022	4
(5) Slightly satisfied	Q022	5
(6) Moderately satisfied	Q022	6
(7) Very satisfied	Q022	7
Not applicable	Q022	99

Amount of work required of you in your **major** courses

Answers	*Column*	*Value*
(1) Very dissatisfied	Q023	1
(2) Moderately dissatisfied	Q023	2

(3) Slightly dissatisfied	Q023	3
(4) Neutral	Q023	4
(5) Slightly satisfied	Q023	5
(6) Moderately satisfied	Q023	6
(7) Very satisfied	Q023	7
Not applicable	Q023	99

Engineering curriculum instructors presentation of technology issues

Answers	*Column*	*Value*
(1) Very dissatisfied	Q024	1
(2) Moderately dissatisfied	Q024	2
(3) Slightly dissatisfied	Q024	3
(4) Neutral	Q024	4
(5) Slightly satisfied	Q024	5
(6) Moderately satisfied	Q024	6
(7) Very satisfied	Q024	7
Not applicable	Q024	99

Opportunities for practical experiences within Undergraduate curriculum

Answers	*Column*	*Value*
(1) Very dissatisfied	Q025	1
(2) Moderately dissatisfied	Q025	2
(3) Slightly dissatisfied	Q025	3
(4) Neutral	Q025	4
(5) Slightly satisfied	Q025	5
(6) Moderately satisfied	Q025	6
(7) Very satisfied	Q025	7
Not applicable	Q025	99

Opportunities for interaction with practitioners

Answers	*Column*	*Value*
(1) Very dissatisfied	Q026	1
(2) Moderately dissatisfied	Q026	2
(3) Slightly dissatisfied	Q026	3
(4) Neutral	Q026	4
(5) Slightly satisfied	Q026	5
(6) Moderately satisfied	Q026	6
(7) Very satisfied	Q026	7
Not applicable	Q026	99

Value derived from team experiences *leadership question*

Answers	*Column*	*Value*
(1) Very dissatisfied	Q027	1
(2) Moderately dissatisfied	Q027	2
(3) Slightly dissatisfied	Q027	3
(4) Neutral	Q027	4
(5) Slightly satisfied	Q027	5
(6) Moderately satisfied	Q027	6
(7) Very satisfied	Q027	7
Not applicable	Q027	99

Value of Engineering program student organization activities *leadership question*

Answers	*Column*	*Value*
(1) Very dissatisfied	Q028	1
(2) Moderately dissatisfied	Q028	2

(3) Slightly dissatisfied	Q028	3
(4) Neutral	Q028	4
(5) Slightly satisfied	Q028	5
(6) Moderately satisfied	Q028	6
(7) Very satisfied	Q028	7
Not applicable	Q028	99

Leadership opportunities in Engineering program's extracurricular activities *leadership question*

Answers	*Column*	*Value*
(1) Very dissatisfied	Q029	1
(2) Moderately dissatisfied	Q029	2
(3) Slightly dissatisfied	Q029	3
(4) Neutral	Q029	4
(5) Slightly satisfied	Q029	5
(6) Moderately satisfied	Q029	6
(7) Very satisfied	Q029	7
Not applicable	Q029	99

Average size of **major** courses

Answers	*Column*	*Value*
(1) Very dissatisfied	Q030	1
(2) Moderately dissatisfied	Q030	2
(3) Slightly dissatisfied	Q030	3
(4) Neutral	Q030	4
(5) Slightly satisfied	Q030	5
(6) Moderately satisfied	Q030	6
(7) Very satisfied	Q030	7
Not applicable	Q030	99

Availability of courses in your **major**

Answers	*Column*	*Value*
(1) Very dissatisfied	Q031	1
(2) Moderately dissatisfied	Q031	2
(3) Slightly dissatisfied	Q031	3
(4) Neutral	Q031	4
(5) Slightly satisfied	Q031	5
(6) Moderately satisfied	Q031	6
(7) Very satisfied	Q031	7
Not applicable	Q031	99

Quality of Engineering classrooms

Answers	*Column*	*Value*
(1) Very dissatisfied	Q032	1
(2) Moderately dissatisfied	Q032	2
(3) Slightly dissatisfied	Q032	3
(4) Neutral	Q032	4
(5) Slightly satisfied	Q032	5
(6) Moderately satisfied	Q032	6
(7) Very satisfied	Q032	7
Not applicable	Q032	99

Amount of work in relationship to what you learned

Answers	*Column*	*Value*
(1) Very dissatisfied	Q033	1

(2) Moderately dissatisfied	Q033	2
(3) Slightly dissatisfied	Q033	3
(4) Neutral	Q033	4
(5) Slightly satisfied	Q033	5
(6) Moderately satisfied	Q033	6
(7) Very satisfied	Q033	7
Not applicable	Q033	99

Section 3 - Response Key Section

Advising/Computing

Satisfaction with:

Academic advising by faculty

Answers	*Column*	*Value*
(1) Very dissatisfied	Q034	1
(2) Moderately dissatisfied	Q034	2
(3) Slightly dissatisfied	Q034	3
(4) Neutral	Q034	4
(5) Slightly satisfied	Q034	5
(6) Moderately satisfied	Q034	6
(7) Very satisfied	Q034	7
Not applicable	Q034	99

Academic advising by non-faculty

Answers	*Column*	*Value*
(1) Very dissatisfied	Q035	1
(2) Moderately dissatisfied	Q035	2
(3) Slightly dissatisfied	Q035	3
(4) Neutral	Q035	4
(5) Slightly satisfied	Q035	5
(6) Moderately satisfied	Q035	6
(7) Very satisfied	Q035	7
Not applicable	Q035	99

Quality of computing resources

Answers	*Column*	*Value*
(1) Very dissatisfied	Q036	1
(2) Moderately dissatisfied	Q036	2
(3) Slightly dissatisfied	Q036	3
(4) Neutral	Q036	4
(5) Slightly satisfied	Q036	5
(6) Moderately satisfied	Q036	6
(7) Very satisfied	Q036	7
Not applicable	Q036	99

Section 4 - Response Key Section

Classmates

Satisfaction with characteristics of your fellow students:

Academic quality

Answers	*Column*	*Value*
(1) Very dissatisfied	Q037	1
(2) Moderately dissatisfied	Q037	2
(3) Slightly dissatisfied	Q037	3
(4) Neutral	Q037	4
(5) Slightly satisfied	Q037	5
(6) Moderately satisfied	Q037	6
(7) Very satisfied	Q037	7

Not applicable	Q037	99

Ability to work in teams

Answers	*Column*	*Value*
(1) Very dissatisfied	Q038	1
(2) Moderately dissatisfied	Q038	2
(3) Slightly dissatisfied	Q038	3
(4) Neutral	Q038	4
(5) Slightly satisfied	Q038	5
(6) Moderately satisfied	Q038	6
(7) Very satisfied	Q038	7
Not applicable	Q038	99

Level of camaraderie

Answers	*Column*	*Value*
(1) Very dissatisfied	Q039	1
(2) Moderately dissatisfied	Q039	2
(3) Slightly dissatisfied	Q039	3
(4) Neutral	Q039	4
(5) Slightly satisfied	Q039	5
(6) Moderately satisfied	Q039	6
(7) Very satisfied	Q039	7
Not applicable	Q039	99

Section 5 - Response Key Section

Career Services

Satisfaction with:

Assistance in preparing you for your permanent job search

Answers	*Column*	*Value*
(1) Very dissatisfied	Q040	1
(2) Moderately dissatisfied	Q040	2
(3) Slightly dissatisfied	Q040	3
(4) Neutral	Q040	4
(5) Slightly satisfied	Q040	5
(6) Moderately satisfied	Q040	6
(7) Very satisfied	Q040	7
Not applicable	Q040	99

Geographic distribution of companies recruiting on campus

Answers	*Column*	*Value*
(1) Very dissatisfied	Q041	1
(2) Moderately dissatisfied	Q041	2
(3) Slightly dissatisfied	Q041	3
(4) Neutral	Q041	4
(5) Slightly satisfied	Q041	5
(6) Moderately satisfied	Q041	6
(7) Very satisfied	Q041	7
Not applicable	Q041	99

Access to school's alumni to cultivate career opportunities

Answers	*Column*	*Value*
(1) Very dissatisfied	Q042	1
(2) Moderately dissatisfied	Q042	2
(3) Slightly dissatisfied	Q042	3
(4) Neutral	Q042	4

(5) Slightly satisfied	Q042	5
(6) Moderately satisfied	Q042	6
(7) Very satisfied	Q042	7
Not applicable	Q042	99

Number of companies recruiting on campus

Answers	*Column*	*Value*
(1) Very dissatisfied	Q043	1
(2) Moderately dissatisfied	Q043	2
(3) Slightly dissatisfied	Q043	3
(4) Neutral	Q043	4
(5) Slightly satisfied	Q043	5
(6) Moderately satisfied	Q043	6
(7) Very satisfied	Q043	7
Not applicable	Q043	99

Quality of companies recruiting on campus

Answers	*Column*	*Value*
(1) Very dissatisfied	Q044	1
(2) Moderately dissatisfied	Q044	2
(3) Slightly dissatisfied	Q044	3
(4) Neutral	Q044	4
(5) Slightly satisfied	Q044	5
(6) Moderately satisfied	Q044	6
(7) Very satisfied	Q044	7
Not applicable	Q044	99

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Section 3 - Response Key Section

Program Outcomes and Assessment

To what degree did your engineering education enhance your ability to:

Apply your knowledge of mathematics

Answers	Column	Value
(1) Not at all	Q045	1
(2)	Q045	2
(3)	Q045	3
(4) Moderately	Q045	4
(5)	Q045	5
(6)	Q045	6
(7) Extremely	Q045	7
Not applicable	Q045	99

Apply your knowledge of science

Answers	Column	Value
(1) Not at a	Q046	1
(2)	Q046	2
(3)	Q046	3
(4) Moderately	Q046	4
(5)	Q046	5

(6)	Q046	6
(7) Extremely	Q046	7
Not applicable	Q046	99

Apply your knowledge of engineering

Answers	*Column*	*Value*
(1) Not at all	Q047	1
(2)	Q047	2
(3)	Q047	3
(4) Moderately	Q047	4
(5)	Q047	5
(6)	Q047	6
(7) Extremely	Q047	7
Not applicable	Q047	99

Design experiments

Answers	*Column*	*Value*
(1) Not at all	Q048	1
(2)	Q048	2
(3)	Q048	3
(4) Moderately	Q048	4
(5)	Q048	5
(6)	Q048	6
(7) Extremely	Q048	7
Not applicable	Q048	99

Conduct experiments

Answers	*Column*	*Value*
(1) Not at all	Q049	1
(2)	Q049	2
(3)	Q049	3
(4) Moderately	Q049	4
(5)	Q049	5
(6)	Q049	6
(7) Extremely	Q049	7
Not applicable	Q049	99

Analyze and interpret data

Answers	*Column*	*Value*
(1) Not at all	Q050	1
(2)	Q050	2
(3)	Q050	3
(4) Moderately	Q050	4
(5)	Q050	5
(6)	Q050	6
(7) Extremely	Q050	7
Not applicable	Q050	99

Design a system, component, or process to meet desired needs

Answers	*Column*	*Value*
(1) Not at all	Q051	1
(2)	Q051	2
(3)	Q051	3
(4) Moderately	Q051	4
(5)	Q051	5

(6)	Q051	6
(7) Extremely	Q051	7
Not applicable	Q051	99

Function on multidisciplinary teams

Answers	*Column*	*Value*
(1) Not at all	Q052	1
(2)	Q052	2
(3)	Q052	3
(4) Moderately	Q052	4
(5)	Q052	5
(6)	Q052	6
(7) Extremely	Q052	7
Not applicable	Q052	99

Identify engineering problems

Answers	*Column*	*Value*
(1) Not at all	Q053	1
(2)	Q053	2
(3)	Q053	3
(4) Moderately	Q053	4
(5)	Q053	5
(6)	Q053	6
(7) Extremely	Q053	7
Not applicable	Q053	99

Formulate engineering problems

Answers	*Column*	*Value*
(1) Not at all	Q054	1
(2)	Q054	2
(3)	Q054	3
(4) Moderately	Q054	4
(5)	Q054	5
(6)	Q054	6
(7) Extremely	Q054	7
Not applicable	Q054	99

Solve engineering problems

Answers	*Column*	*Value*
(1) Not at all	Q055	1
(2)	Q055	2
(3)	Q055	3
(4) Moderately	Q055	4
(5)	Q055	5
(6)	Q055	6
(7) Extremely	Q055	7
Not applicable	Q055	99

Understand ethical responsibilities

Answers	*Column*	*Value*
(1) Not at all	Q056	1
(2)	Q056	2
(3)	Q056	3
(4) Moderately	Q056	4
(5)	Q056	5

(6)	Q056	6
(7) Extremely	Q056	7
Not applicable	Q056	99

Understand professional responsibility

Answers	*Column*	*Value*
(1) Not at all	Q057	1
(2)	Q057	2
(3)	Q057	3
(4) Moderately	Q057	4
(5)	Q057	5
(6)	Q057	6
(7) Extremely	Q057	7
Not applicable	Q057	99

Communicate using oral progress reports

Answers	*Column*	*Value*
(1) Not at all	Q058	1
(2)	Q058	2
(3)	Q058	3
(4) Moderately	Q058	4
(5)	Q058	5
(6)	Q058	6
(7) Extremely	Q058	7
Not applicable	Q058	99

Communicate using written progress reports

Answers	*Column*	*Value*
(1) Not at all	Q059	1
(2)	Q059	2
(3)	Q059	3
(4) Moderately	Q059	4
(5)	Q059	5
(6)	Q059	6
(7) Extremely	Q059	7
Not applicable	Q059	99

Recognize need to engage in lifelong learning

Answers	*Column*	*Value*
(1) Not at all	Q060	1
(2)	Q060	2
(3)	Q060	3
(4) Moderately	Q060	4
(5)	Q060	5
(6)	Q060	6
(7) Extremely	Q060	7
Not applicable	Q060	99

Understand contemporary issues

Answers	*Column*	*Value*
(1) Not at all	Q061	1
(2)	Q061	2
(3)	Q061	3
(4) Moderately	Q061	4
(5)	Q061	5

(6)	Q061	6
(7) Extremely	Q061	7
Not applicable	Q061	99

Use modern engineering tools specific to your primary academic major

Answers	*Column*	*Value*
(1) Not at all	Q062	1
(2)	Q062	2
(3)	Q062	3
(4) Moderately	Q062	4
(5)	Q062	5
(6)	Q062	6
(7) Extremely	Q062	7
Not applicable	Q062	99

Apply skills specific to your primary academic major

Answers	*Column*	*Value*
(1) Not at all	Q063	1
(2)	Q063	2
(3)	Q063	3
(4) Moderately	Q063	4
(5)	Q063	5
(6)	Q063	6
(7) Extremely	Q063	7
Not applicable	Q063	99

Build on knowledge from previous course work

Answers	*Column*	*Value*
(1) Not at all	Q064	1
(2)	Q064	2
(3)	Q064	3
(4) Moderately	Q064	4
(5)	Q064	5
(6)	Q064	6
(7) Extremely	Q064	7
Not applicable	Q064	99

Build on skills from previous course work

Answers	*Column*	*Value*
(1) Not at all	Q065	1
(2)	Q065	2
(3)	Q065	3
(4) Moderately	Q065	4
(5)	Q065	5
(6)	Q065	6
(7) Extremely	Q065	7
Not applicable	Q065	99

Incorporate engineering standards

Answers	*Column*	*Value*
(1) Not at all	Q066	1
(2)	Q066	2
(3)	Q066	3
(4) Moderately	Q066	4
(5)	Q066	5

(6)	Q066	6
(7) Extremely	Q066	7
Not applicable	Q066	99

Pilot test a component prior to implementation

Answers	*Column*	*Value*
(1) Not at all	Q067	1
(2)	Q067	2
(3)	Q067	3
(4) Moderately	Q067	4
(5)	Q067	5
(6)	Q067	6
(7) Extremely	Q067	7
Not applicable	Q067	99

Use text materials to support project design

Answers	*Column*	*Value*
(1) Not at all	Q068	1
(2)	Q068	2
(3)	Q068	3
(4) Moderately	Q068	4
(5)	Q068	5
(6)	Q068	6
(7) Extremely	Q068	7
Not applicable	Q068	99

Section 2 - Response Key Section

To what degree did your engineering education enhance your ability to understand the impact of engineering solutions in:

A global/societal context

Answers	*Column*	*Value*
(1) Not at all	Q069	1
(2)	Q069	2
(3)	Q069	3
(4) Moderately	Q069	4
(5)	Q069	5
(6)	Q069	6
(7) Extremely	Q069	7
Not applicable	Q069	99

An economic context

Answers	*Column*	*Value*
(1) Not at all	Q070	1
(2)	Q070	2
(3)	Q070	3
(4) Moderately	Q070	4
(5)	Q070	5
(6)	Q070	6
(7) Extremely	Q070	7
Not applicable	Q070	99

An environmental context

Answers	*Column*	*Value*
(1) Not at all	Q071	1
(2)	Q071	2

(3)	Q071	3
(4) Moderately	Q071	4
(5)	Q071	5
(6)	Q071	6
(7) Extremely	Q071	7
Not applicable	Q071	99

Section 3 - Response Key Section

System Design

To what degree did your system design experience address the following:

Economic issues

Answers	*Column*	*Value*
(1) Not at all	Q072	1
(2)	Q072	2
(3)	Q072	3
(4) Moderately	Q072	4
(5)	Q072	5
(6)	Q072	6
(7) Extremely	Q072	7
Not applicable	Q072	99

Environmental issues

Answers	*Column*	*Value*
(1) Not at all	Q073	1
(2)	Q073	2
(3)	Q073	3
(4) Moderately	Q073	4
(5)	Q073	5
(6)	Q073	6
(7) Extremely	Q073	7
Not applicable	Q073	99

Social issues

Answers	*Column*	*Value*
(1) Not at all	Q074	1
(2)	Q074	2
(3)	Q074	3
(4) Moderately	Q074	4
(5)	Q074	5
(6)	Q074	6
(7) Extremely	Q074	7
Not applicable	Q074	99

Political issues

Answers	*Column*	*Value*
(1) Not at all	Q075	1
(2)	Q075	2
(3)	Q075	3
(4) Moderately	Q075	4
(5)	Q075	5
(6)	Q075	6
(7) Extremely	Q075	7
Not applicable	Q075	99

Ethical issues

Answers	Column	Value
(1) Not at all	Q076	1
(2)	Q076	2
(3)	Q076	3
(4) Moderately	Q076	4
(5)	Q076	5
(6)	Q076	6
(7) Extremely	Q076	7
Not applicable	Q076	99

Health and Safety issues

Answers	Column	Value
(1) Not at all	Q077	1
(2)	Q077	2
(3)	Q077	3
(4) Moderately	Q077	4
(5)	Q077	5
(6)	Q077	6
(7) Extremely	Q077	7
Not applicable	Q077	99

Manufacturability issues

Answers	Column	Value
(1) Not at all	Q078	1
(2)	Q078	2
(3)	Q078	3
(4) Moderately	Q078	4
(5)	Q078	5
(6)	Q078	6
(7) Extremely	Q078	7
Not applicable	Q078	99

Sustainability issues

Answers	Column	Value
(1) Not at all	Q079	1
(2)	Q079	2
(3)	Q079	3
(4) Moderately	Q079	4
(5)	Q079	5
(6)	Q079	6
(7) Extremely	Q079	7
Not applicable	Q079	99

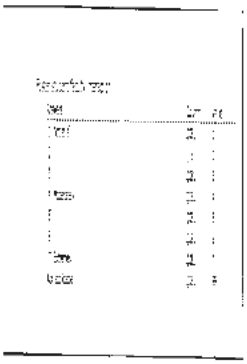
Section 4 - Response Key Section

Laboratory Facilities

To what degree did laboratory facilities:

Establish an atmosphere conducive to learning

Answers	Column	Value
(1) Not at all	Q080	1
(2)	Q080	2
(3)	Q080	3
(4) Moderately	Q080	4
(5)	Q080	5
(6)	Q080	6
(7) Extremely	Q080	7
Not applicable	Q080	99



Page 6 *- Opinion 4*

Section 1 - Response Key Section

Course Comparison

How did the quality of teaching in your Engineering courses compare to the quality of teaching in your non-Engineering courses on this campus?

Answers	*Column*	*Value*
(1) Far worse	Q082	1
(2)	Q082	2
(3)	Q082	3
(4) Comparable	Q082	4
(5)	Q082	5
(6)	Q082	6
(7) Far better	Q082	7

Section 2 - Response Key Section

THE BOTTOM LINE - Overall Satisfaction

To what extent did your Undergraduate Engineering program experience fulfill your expectations?

Answers	*Column*	*Value*
(1) Far below	Q083	1
(2) Moderately below	Q083	2
(3) Slightly below	Q083	3
(4) Met expectations	Q083	4
(5) Slightly above	Q083	5
(6) Moderately above	Q083	6
(7) Far above	Q083	7

Section 3 - Response Key Section

When you compare the expense to the quality of your education, how do you rate the value of the investment you made in your Undergraduate Engineering program?

Answers	*Column*	*Value*
(1) Very poor	Q084	1
(2) Poor	Q084	2
(3) Fair	Q084	3
(4) Good	Q084	4

(5) Very good	Q084	5
(6) Excellent	Q084	6
(7) Exceptional	Q084	7

Section 4 - Response Key Section

How inclined are you to recommend your:

Undergraduate Engineering Major to a close friend

Answers	Column	Value
(1) Not at all	Q085	1
(2)	Q085	2
(3)	Q085	3
(4) Moderately	Q085	4
(5)	Q085	5
(6)	Q085	6
(7) Extremely	Q085	7

Undergraduate Engineering School to a close friend

Answers	Column	Value
(1) Not at all	Q086	1
(2)	Q086	2
(3)	Q086	3
(4) Moderately	Q086	4
(5)	Q086	5
(6)	Q086	6
(7) Extremely	Q086	7

2004-2005 Civil College of Engineering EBI Instructional Specific Questions

1. To what degree did your engineering education enhance your ability to organize individuals or groups to achieve a specific goal? *Please rate your response on a scale of 1-7 where 1= not at all; 4 = Moderately; and 7 = Extremely, or choose NA for Not Applicable.*

2. To what degree did your engineering education enhance your ability to communicate with students, faculty, or engineering professionals from other disciplines? *Please rate your response on a scale of 1-7 where 1= not at all; 4 = Moderately; and 7 = Extremely, or choose NA for Not Applicable.*

leadership question

3. If you participated in any engineering student societies, please indicate the degree to which this experience created an opportunity for you to develop leadership skills. *Please rate your response on a scale of 1-7 where 1= not at all; 4 = Moderately; and 7 = Extremely, or choose NA for Not Applicable.*

4. If you were to pursue a dual degree, please indicate which academic area you might consider. (Select one.)
   1. Social Sciences or Humanities
   2. Computer and/or Information Technology
   3. Math or Science
   4. Business, Marketing or Communications
   5. Medical or Health Profession
   6. Law or Education or Government
   7. NA

7. How satisfied were you with the technology enhanced learning educational experiences in your CoE education?

7. How satisfied were you with the technology enhanced learning educational experiences in your CoE education? *Please rate your response on a scale of 1-7 where 1= not at all; 4 = Moderately; and 7 = Extremely, or choose NA for Not Applicable.*

8. If you participated in (or would have participated in) an international program, the general destination that would have been most helpful to your career development would be: *(Select one)*
   1. Europe
   2. China/East Asia
   3. India/South Asia
   4. Mexico/Central America/Caribbean
   5. South America
   6. Australia/New Zealand/Oceania
   7. Africa

9. If you did not participate in an international experience (such as study abroad, international co-op/internship, summer lab, etc.) during your undergraduate education, what was the primary reason that prevented you from doing so? (*Select one.)*

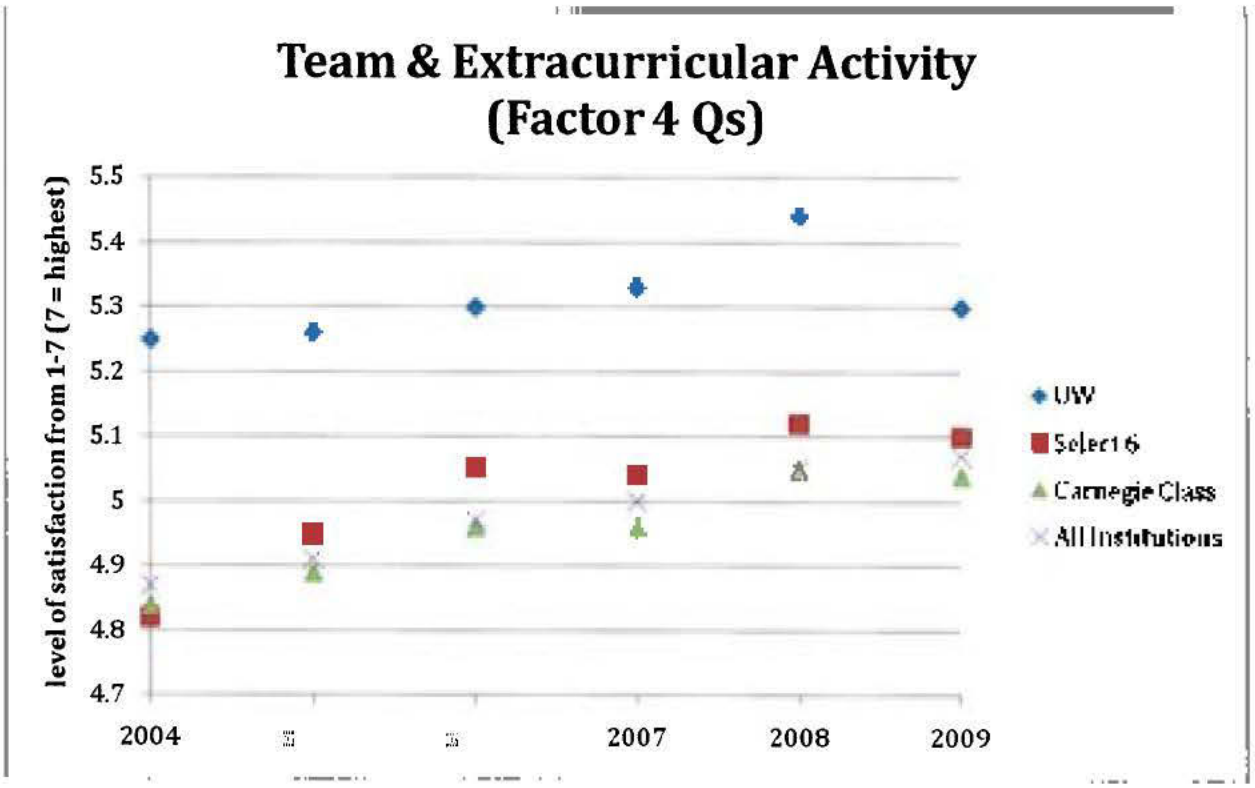
   1. Does not apply – I had one or more international experiences
   2. Financial Reasons
   3. Did not think I could complete degree requirements abroad
   4. Opportunities were not in the country or location I desired
   5. Did not think it was an important part of my undergraduate career
   6. Did not think I met the pre-requisites; CPA, class standing, or language to participate
   7. Other obstacles not on the list

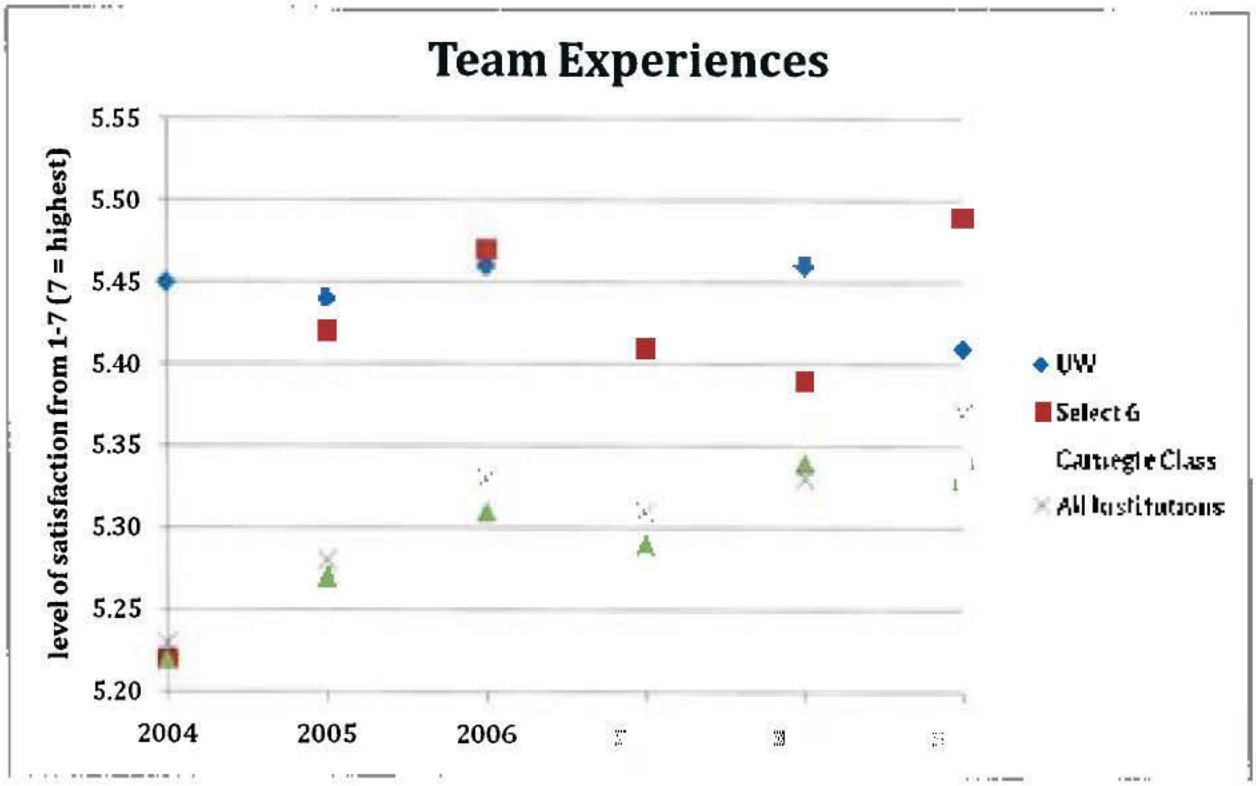
leadership question

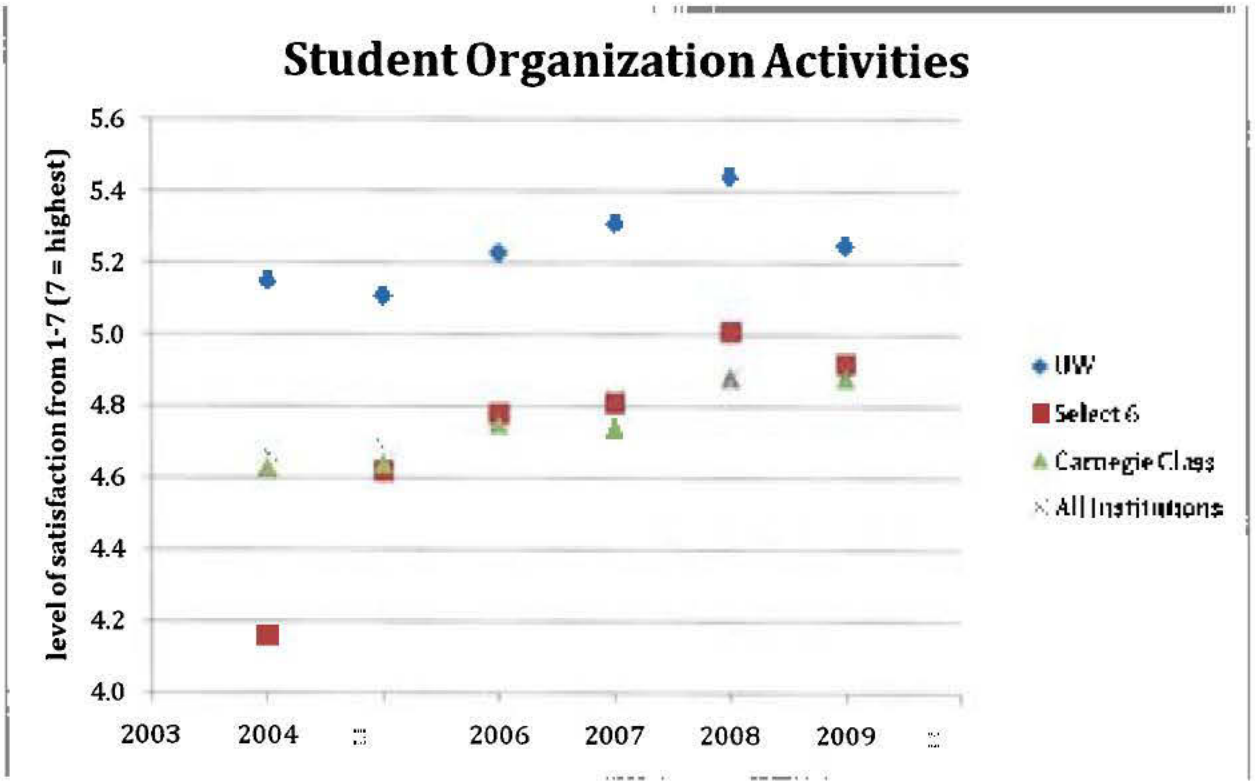
10. If you visited the Student Leadership Center (SLC) while enrolled in the College of Engineering, what brought you in? *(Select one.)*

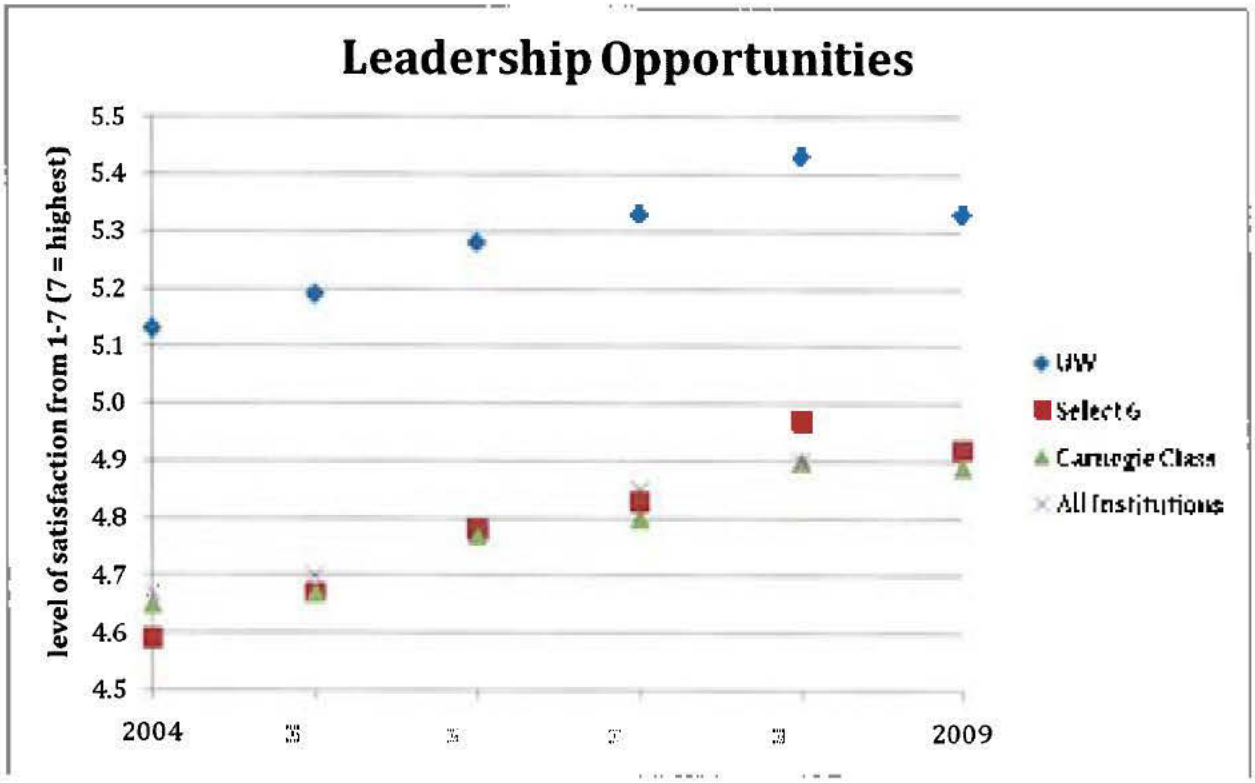
    1. For information on registered SLC student organizations
    2. To get financial planning or budget assistance
    3. For room reservations/building access (including to get a key & keycard requests)
    4. To get program/event planning assistance
    5. To inquire about the Leadership Certificate
    6. To find out more about leadership opportunities on campus
    7. Not applicable

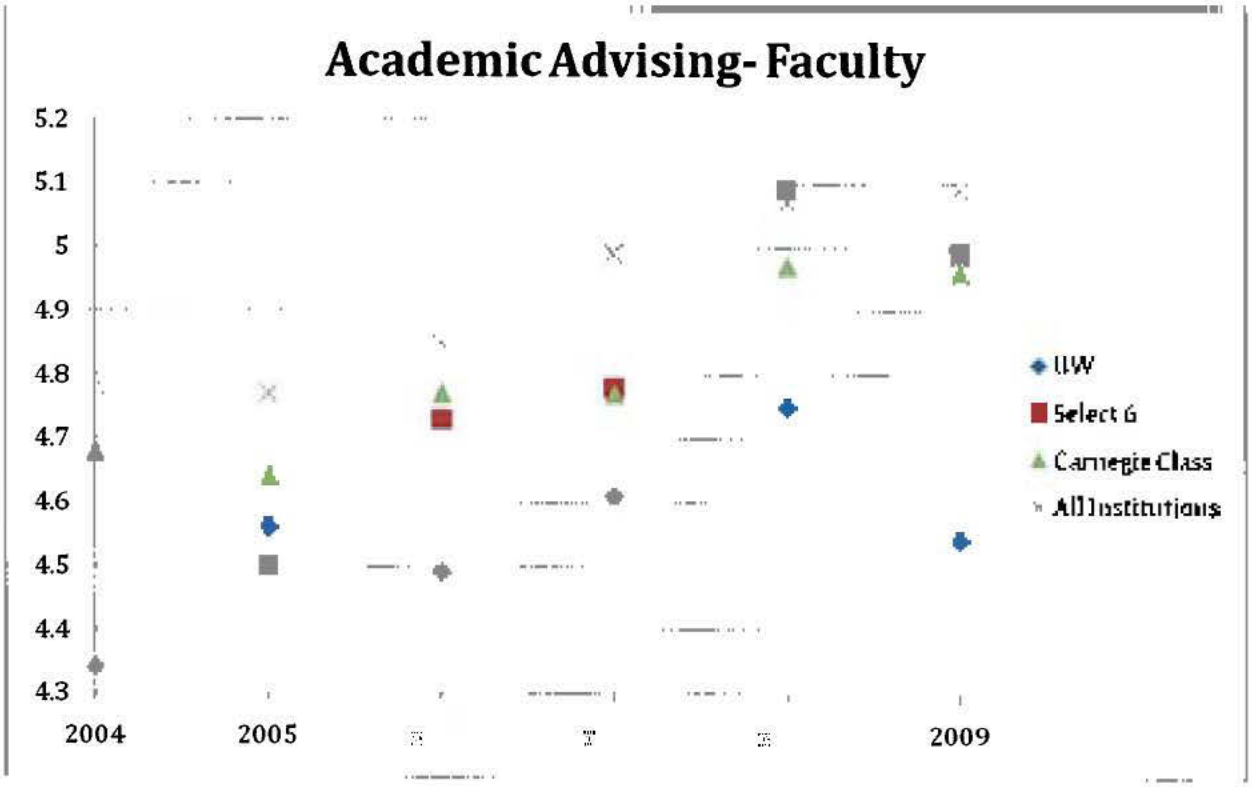
Appendix 6: EBI Benchmarking Leadership-Related Data

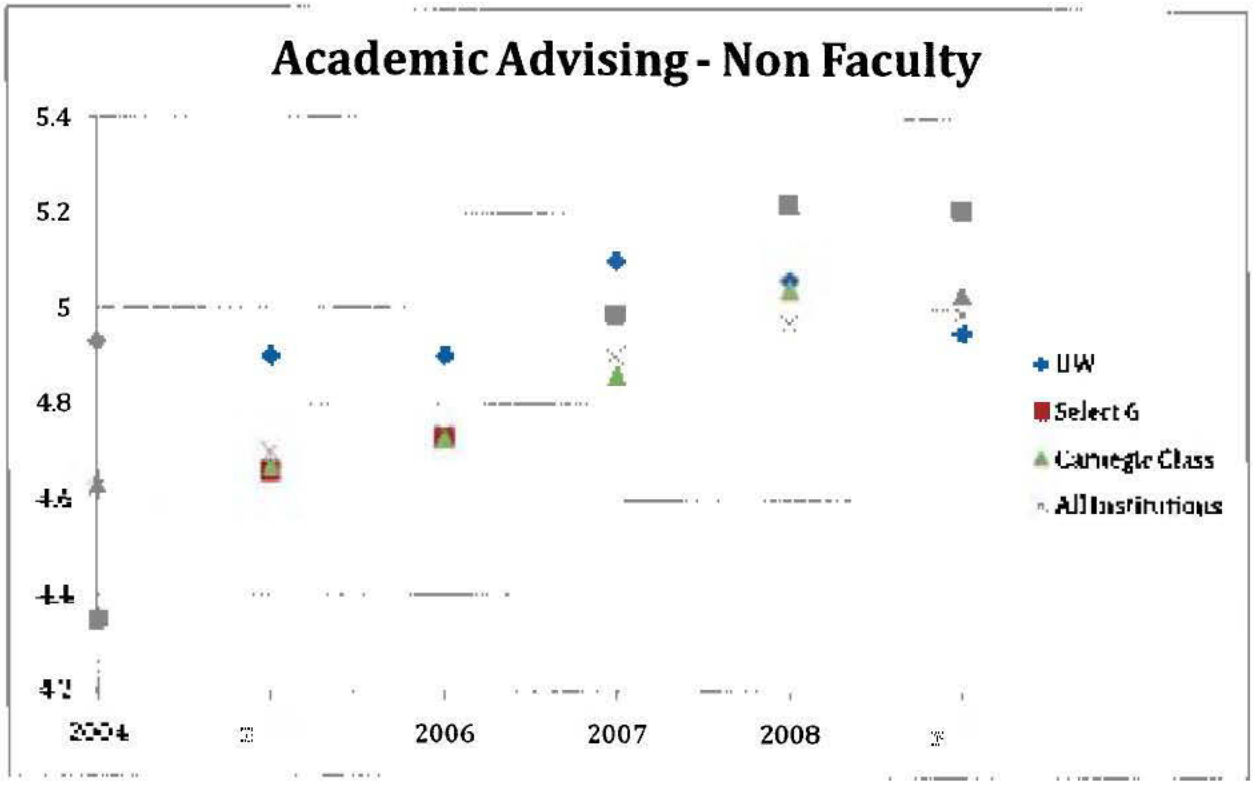

Team & Extracurricular Activity
(Factor 4 Qs)
level of satisfaction from 1-7 (7 = highest)
5.5
5.4
5.3
5.2
5.1
5
4.9
4.8
4.7
2004
2007
2008
2009
UW
Select 6
Carnegie Class
All Institutions

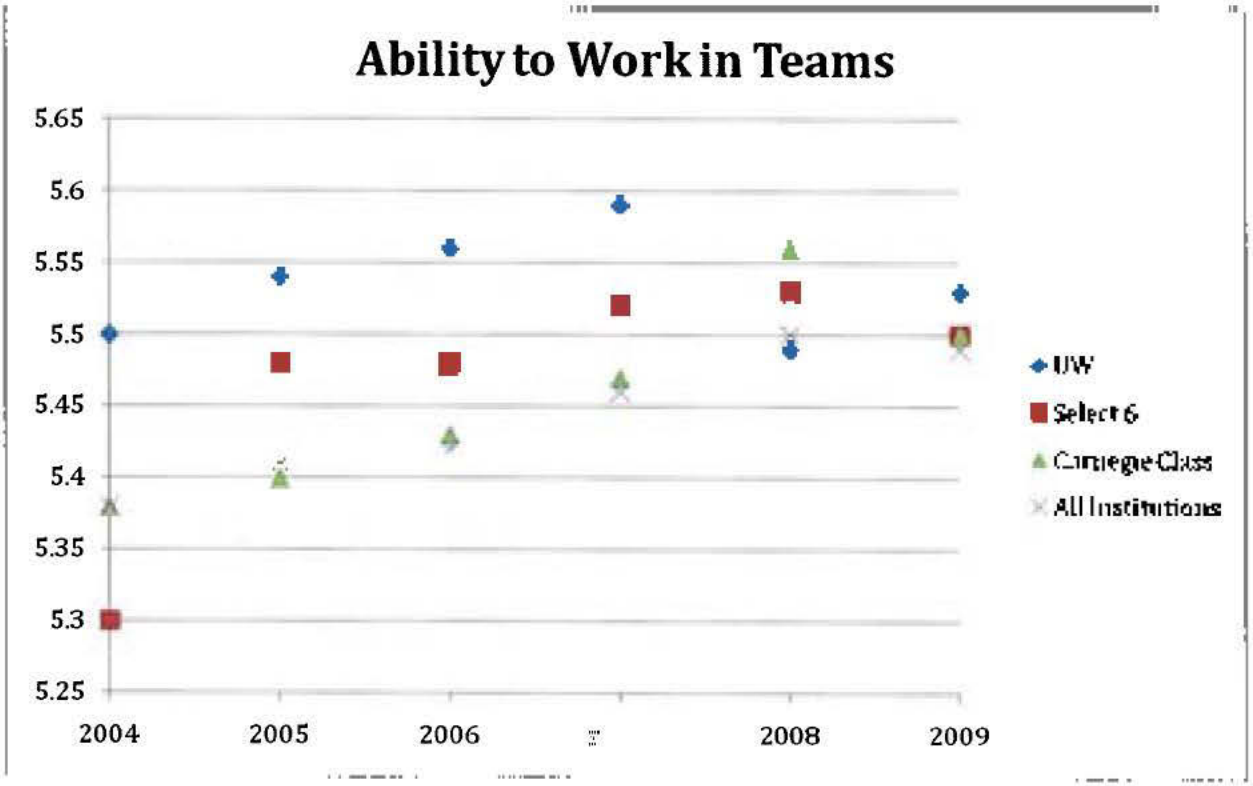

Team Experiences
level of satisfaction from 1-7 (7 = highest)
5.55
5.50
5.45
5.40
5.35
5.30
5.25
5.20
2004
2005
2006
UW
Select 6
Carnegie Class
All Institutions

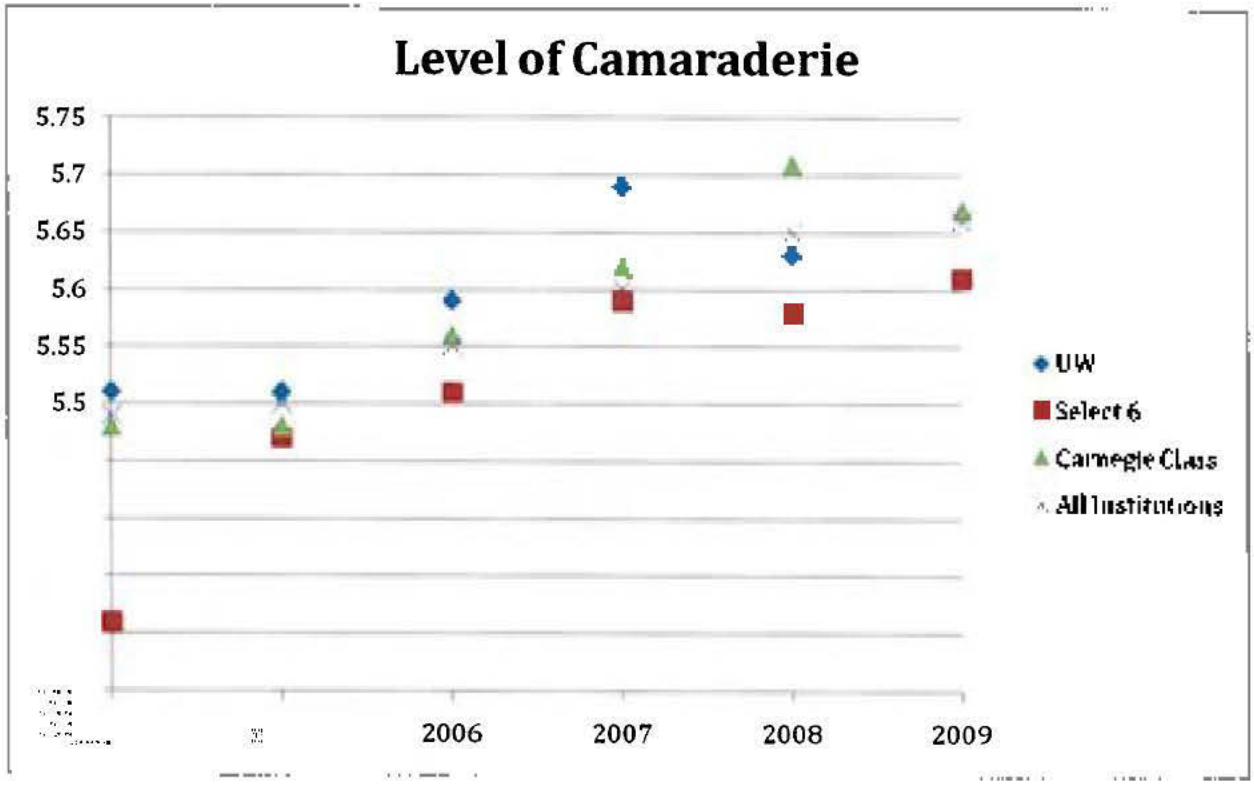

Student Organization Activities
level of satisfaction from 1-7 (7 = highest)
5.6
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
2003
2004
2006
2007
2008
2009
UW
Select 6
Carnegie Class
All Institutions

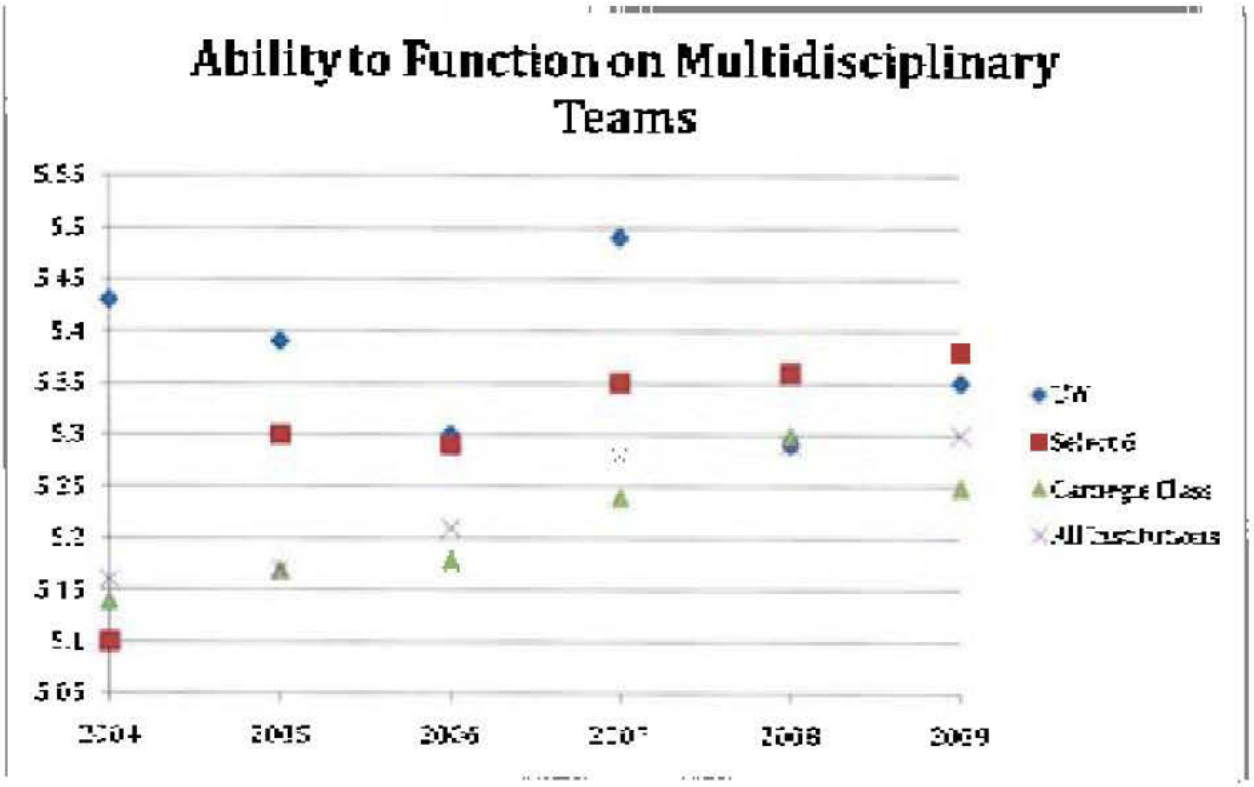

Leadership Opportunities
level of satisfaction from 1-7 (7 = highest)
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
2004
2009
UW
Select 6
Carnegie Class
All Institutions

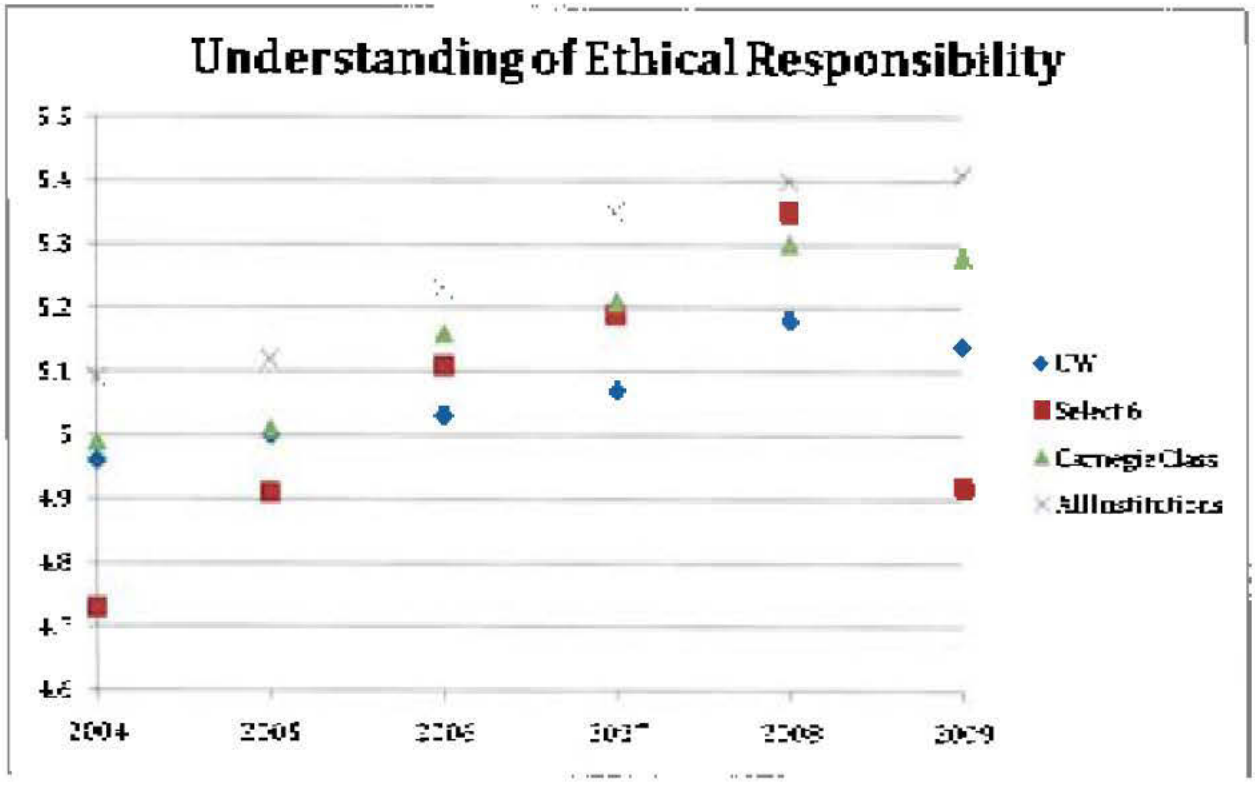

Academic Advising- Faculty
5.2
5.1
5
4.9
4.8
4.7
4.6
4.5
4.4
4.3
2004
2005
2009
UW
Select 6
Carnegie Class
All Institutions

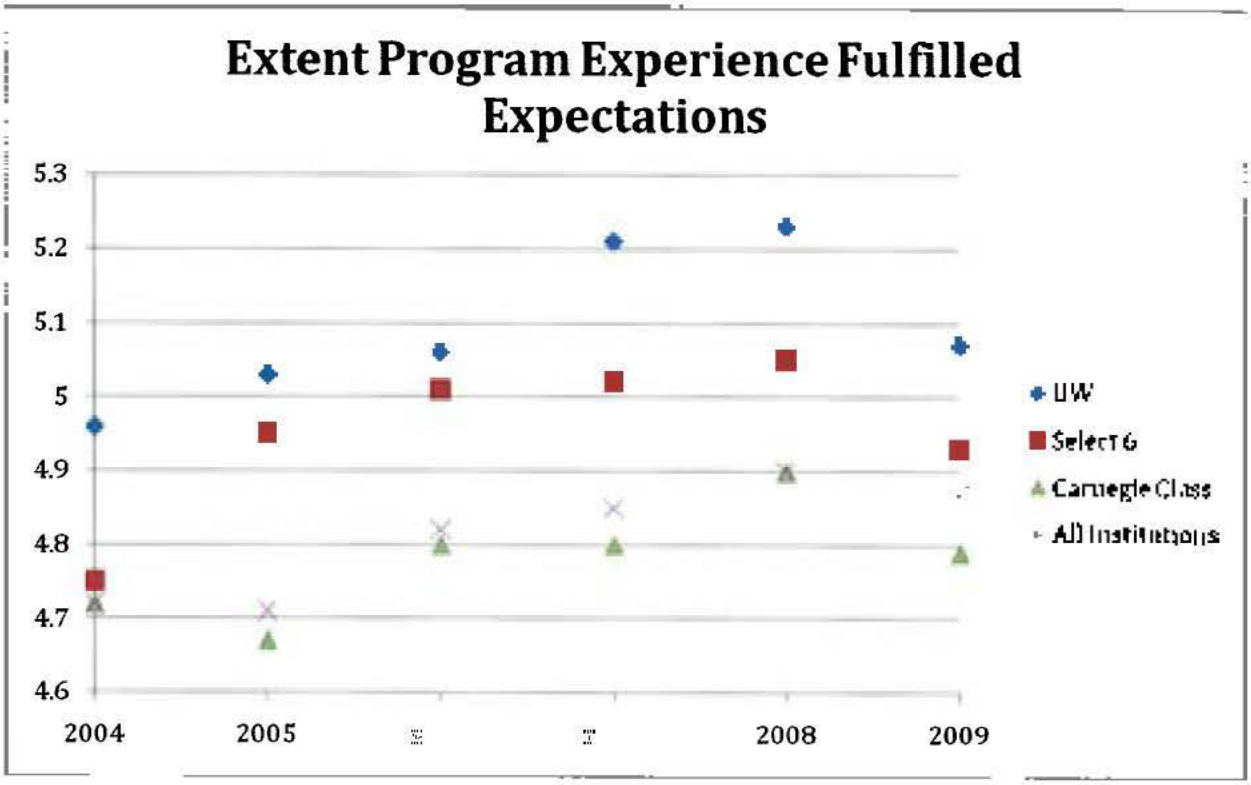

Academic Advising - Non Faculty
5.4
5.2
5
4.8
4.6
4.4
2004
2006
2007
2008
UW
Select 6
Carnegie Class
All Institutions


Ability to Work in Teams
5.65
5.6
5.55
5.5
5.45
5.4
5.35
5.3
5.25
2004
2005
2006
2008
2009
UW
Select 6
Carnegie Class
All Institutions


Level of Camaraderie
5.75
5.7
5.65
5.6
5.55
5.5
2006
2007
2008
2009
UW
Select 6
Carnegie Class
All Institutions


Ability to Function on Multidisciplinary Teams
5.55
5.5
5.45
5.4
5.35
5.3
5.25
5.2
5.15
5.1
5.05
2004
2005
2006
2007
2008
2009
LW
Select 6
Carnegie Class
All Institutions


Understanding of Ethical Responsibility
5.5
5.4
5.3
5.2
5.1
5
4.9
4.8
2004
2005
2006
2007
2008
2009
LW
Select 6
Carnegie Class
All Institutions


Extent Program Experience Fulfilled Expectations
5.3
5.2
5.1
5
4.9
4.8
4.7
4.6
2004
2005
2008
2009
UW
Select 6
Carnegie Class
All Institutions

2008-2009 UW College of Engineering EBI Institutional Specific Questions

1. To what degree did your engineering education enhance your ability to organize individuals or groups to achieve a specific goal? *Please rate your response on a scale of 1-7 where 1= not at all; 4 = Moderately; and 7 = Extremely, or choose NA for Not Applicable.*

	N	% of Total
(1) Not at all	4	0.8%
(2)	8	1.6%
(3)	20	4.1%
(4) Moderately	84	17.1%
(5)	131	26.7%
(6)	180	36.7%
(7) Extremely	63	12.9%
Not Applicable	0	0.0%

% Resp = 93.3%
N = 490
Mean = 5.29
Std Dev = 1.19

2. To what degree did your engineering education enhance your ability to communicate with students, faculty, or engineering professionals from other disciplines? *Please rate your response on a scale of 1-7 where 1 = not at all, 4 = Moderately and 7 = Extremely, or choose NA for Not Applicable.*

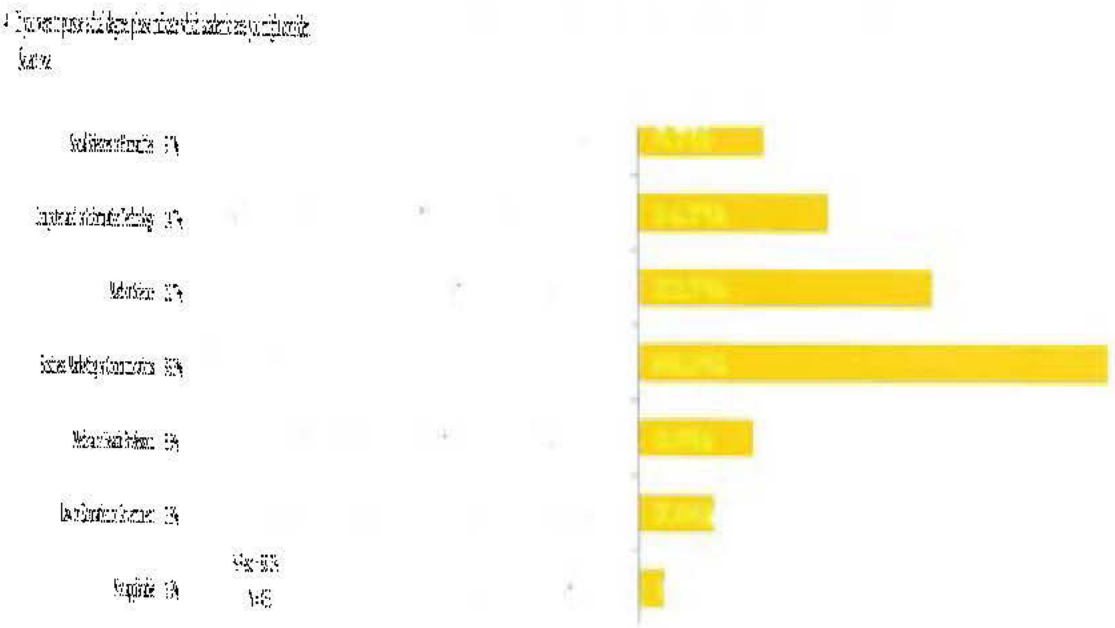
	N	% of Total
(1) Not at all	3	0.4%
(2)	16	3.3%
(3)	36	7.3%
(4) Moderately	96	19.6%
(5)	135	27.6%
(6)	140	28.6%
(7) Extremely	65	13.3%
Not Applicable	0	0.0%

% Resp = 91.3%
N = 490
Mean = 5.09
Std Dev = 1.29

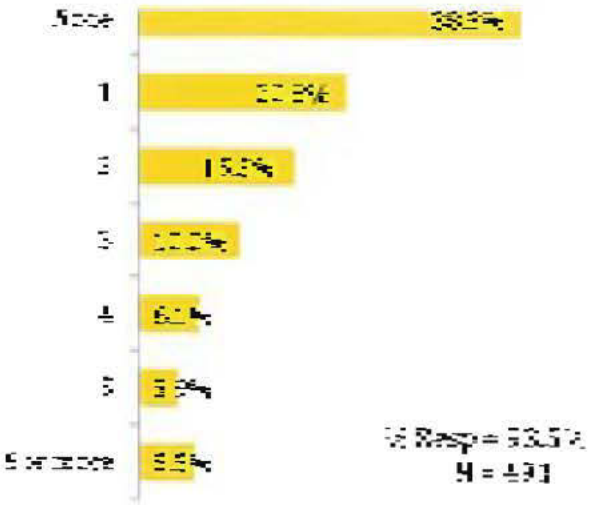
3 If you participated in any engineering student societies, please indicate the degree to which this experience created an opportunity for you to develop leadership skills. *Please rate your response on a scale of 1-7 where 1= not at all, 4 = Moderately, and 7 = Extremely, or choose NA for Not Applicable.*

	N	% of Total
[1] Not at all	4	1.4%
[2]	15	5.1%
[3]	14	4.8%
[4] Moderately	62	21.2%
[5]	51	17.5%
[6]	51	17.5%
[7] Extremely	95	32.5%
Not Applicable	0	0.0%

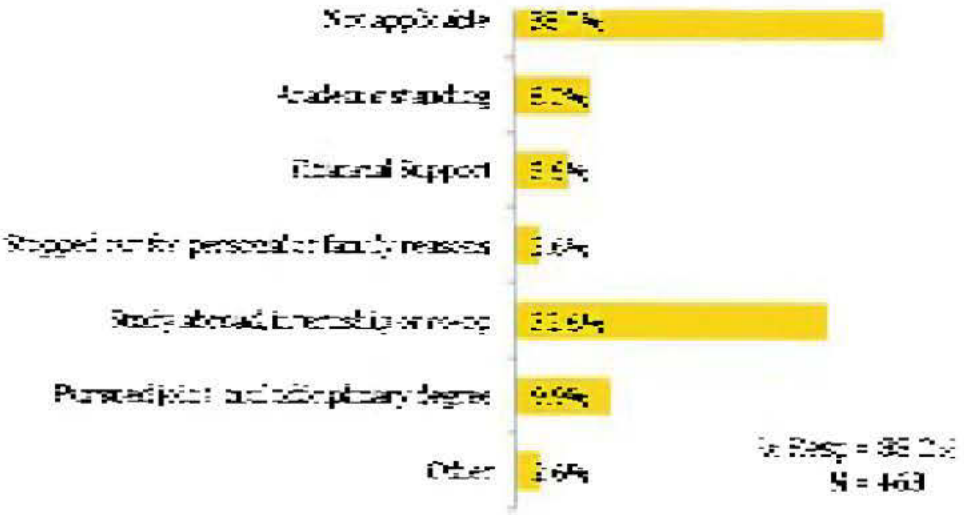
% Resp = 55.5%
N = 292
Mean = 5.31
Std Dev = 1.57



4. How many times, if any, have you been unable to get into courses that you wanted for your major or to complete your degree because they were already full when you tried to register? *Select one.*

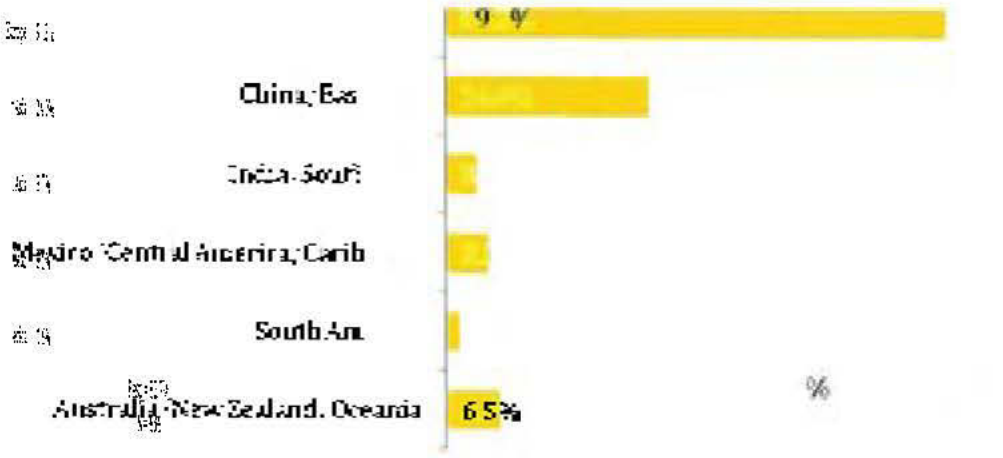


5. Besides course availability, which of the following has prevented you from completing your degree within your desired timeframe? *Select one.*

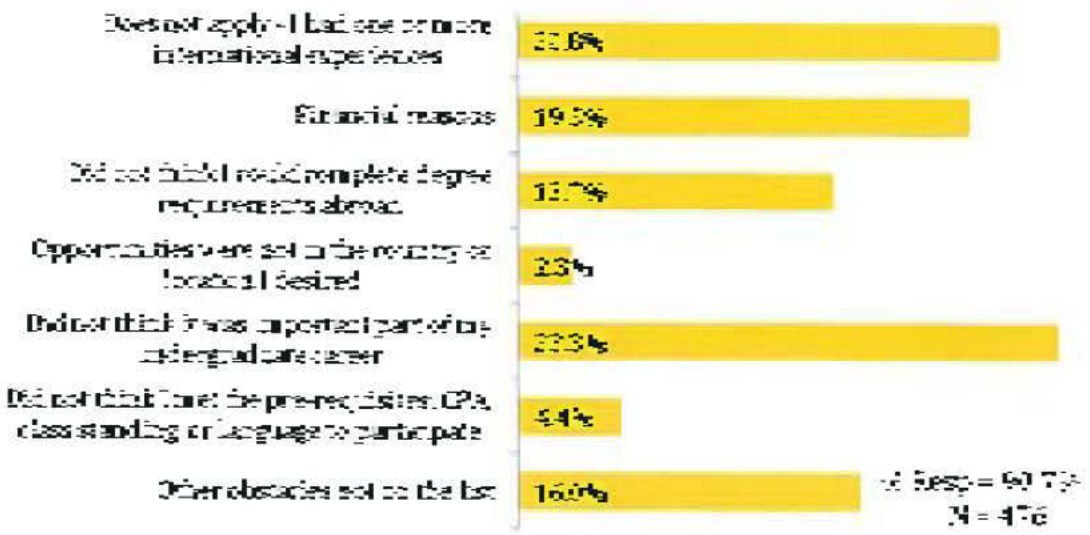


7. How satisfied were you with the technology enhanced learning educational experiences in your CoE education? Please rate your response on a scale of 1-7 where 1 = not at all, 4 = Moderately, and 7 = Extremely, or choose NA for Not Applicable.

	N	% of Total	
1[illegible] Not at all	3	0.6%	
2.	9	1.9%	% Resp = 91.2%
3.	24	5.1%	N = 473
4. Moderately	103	21.8%	Mean = 5.17
5.	126	26.6%	Std Dev = 1.34
6.	155	32.7%	
7. Extremely	53	11.2%	
Not Applicable	0	0.0%	



9. If you did not participate in an international experience, such as study abroad, international co-op/internship, summer lab, etc.) during your undergraduate education, what was the primary reason that prevented you from doing so? Select one.



17. If you visited the Student Leadership Center (SLC) while enrolled in the College of Engineering, what brought you in? Select one.

Appendix 7: Additional Service Statistics: Engineering Peace Corps Volunteers

Number of Engineering Alumni Entering Service with the Peace Corps

		Fiscal Year					
University	**Engineering Major**	**2004**	**2005**	**2006**	**2007**	**2008**	**Grand Total**
Purdue University - West Lafayette	Aerospace Engineering	0	0	0	0	1	1
	Electrical Engineering	0	1	0	1	1	3
	Engineering	3	1	1	0	1	6
	Environmental Engineering	0	1	0	0	0	1
	Industrial Engineering	0	1	1	0	0	2
	Mechanical Engineering	1	1	0	1	0	3
Purdue University - West Lafayette Total		**4**	**5**	**2**	**2**	**3**	**16**
University of California - Berkeley	Civil Engineering	0	0	0	1	0	1
	Engineering	3	4	0	1	0	8
	Industrial Engineering	0	0	1	0	0	1
	Mechanical Engineering	0	1	0	0	1	2
University of California - Berkeley Total		**3**	**5**	**1**	**2**	**1**	**12**
University of Illinois - Urbana	Chemical Engineering	0	1	0	0	0	1
	Civil Engineering	0	1	0	0	0	1
	Electrical Engineering	1	0	0	0	0	1
	Engineering	0	0	1	0	0	1
	Water Resources Engineering	0	0	0	0	1	1
University of Illinois - Urbana Total		**1**	**2**	**1**	**0**	**1**	**5**
University of Michigan - Ann Arbor	Aerospace Engineering	0	0	2	0	0	2
	Civil Engineering	0	1	0	0	0	1
	Computer Engineering	0	0	0	0	1	1
	Engineering	4	1	1	0	2	8
	Environmental Engineering	1	3	1	0	0	5
	Industrial Engineering	1	1	2	0	0	4
	Mechanical Engineering	1	2	1	0	1	5
University of Michigan - Ann Arbor Total		**7**	**8**	**7**	**0**	**4**	**26**
University of Texas - Austin	Aerospace Engineering	0	0	1	0	0	1
	Chemical Engineering	1	1	1	0	0	3
	Civil Engineering	0	1	0	1	1	3
	Electrical Engineering	1	0	0	0	0	1
University of Texas - Austin Total		**2**	**2**	**2**	**1**	**1**	**8**
University of Wisconsin - Madison	Civil Engineering	0	0	6	0	0	6
	Engineering	1	0	1	0	0	2
	Environmental Engineering	1	0	1	1	0	3
	Geophysical Engineering	0	0	0	0	1	1
	Industrial Engineering	0	0	0	1	0	1
	Mechanical Engineering	1	0	1	1	0	3
University of Wisconsin - Madison Total		**3**	**0**	**9**	**3**	**1**	**16**
Grand Total		**20**	**22**	**22**	**8**	**11**	**83**

Appendix 8: Revised and Expanded Dean's Leadership Course

Dean's Leadership Course
InterEng 400, 1 credit
Class #15335
Monday, 5:00-6:30 p.m.
Tong Auditorium, Engineering Centers Building

Instructors:
Jeff Russell, Chair
Department of Civil Engineering
Pieper Family Foundation Endowed
Chair for Servant-Leadership
2205 Engineering Hall
1415 Engineering Drive
Madison, WI 53706
608-262-7444
russell@engr.wisc.edu

Tom McGlamery, Faculty Associate
Engineering Professional Development
M1036h Engineering Centers Building
1550 Engineering Drive
Madison, WI 53706
608-265-4735
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Alicia Jackson, Director
Student Leadership Center
M1080 Engineering Centers Building
1550 Engineering Drive
Madison, WI 53706
608-265-2899
ajackson@engr.wisc.edu

Course Description:
The course is designed to build and enhance the quality of leadership skills our student leaders possess and bring back to their respective student organizations and departments, by increasing students knowledge of self, others, common leadership theories and practices, and more.

The Social Change Model of Leadership Development provides a theoretical framework for the course with a premise that leadership can be learned, and that it is a process rather than a position, recognizing that everyone has the potential to be a leader. The goal of the Social Change Model is to enhance student leadership development and learning in key content areas of individual, group and community values. The central principles of the Social Change Model say leadership is "purposeful, collaborative, values-based" and "results in positive social change".

The Social Change Model of Leadership focuses on seven core values needed to become a successful leader and effect positive social change. This course will address each of the seven values over the 10 week course period. The seven values are:

- Consciousness of Self
- Congruence
- Commitment
- Collaboration
- Common Purpose
- Controversy with Civility
- Citizenship

Course Objective:
The goal of the Dean's Leadership Course is to help build community among student leaders in the College of Engineering and to provide them with organizational and leadership development tools and information that will assist them in running effective organizations on campus. The main focus of both the Social Change Model and this course is increasing students' capacity to mobilize self and others to facilitate positive social change at UW-Madison and beyond, thus creating better citizens and future leaders.

Course Overview:

- Introduction to Leadership Models and Theories
- Consciousness of Self – True Colors, Kathy Kruse, Assistant Dean, Student Advocacy and Judicial Affairs in the Offices of the Dean of Students
- Congruence, Commitment and Passion – Dick Antoine, Guest Speaker
- Collaboration and Common Purpose – Adventure Learning Programs
- Conflict Management and Facilitation Skills – Harry Webne Behrman, Training Officer, Office of Human Resource Development
- Citizenship – Alex Sevett, Organizational Development Consultant, Student Leadership Program
- Fundraising/Industry Relations – UW Foundation
- Student Choice – TBD
- Global Perspectives on Leadership – Paul Peercy, Dean, College of Engineering
- Group Presentations

Grading
This course runs for ten weeks and is graded on a Pass/Fail basis. Student leaders who are registered for the class will receive a Pass if they attend the class, participate actively during the discussions each week, complete required reading and journaling exercises, and do not have more than three unexcused absences during the semester.

Fall 2009 Dean's Leadership Class Student Evaluation Results

Question	Average Rating (1=low, 5=high)
1. My overall rating of the instructor is	4.39
2. Based on my learning experience, I would recommend this class to a friend	4.60
3. The goals of the course were clearly stated and corresponded to the course content	4.72
4. The instructor demonstrated the significance of the material, used realistic examples, and stimulated my thinking	4.60
5. The instructor was receptive to questions and comments	4.84
6. The instructor motivated me to continue learning effective communication practices	4.4
7. The instructor prepared clear and useful assignments and handouts	4.20
8. The instructor provided useful and timely feedback through marked assignments and handouts	3.73
9. The instructor was well organized and used effective presentation techniques	4.60
10. The instructor was available when needed and requested	4.36

13. Comment on the use of collaborative methods, such as team work, small group discussions, and workshops in helping you learn the course material.

- totally helped having good teams/relationships makes you more successful, more interested in effective leadership and events

13. Comment on the use of collaborative methods, such as team work, small group discussions, and workshops in helping you learn the course material.

Working as a team definately helped because than you can have leadership positions but also learn to take the role of a follower.

13. Comment on the use of collaborative methods, such as team work, small group discussions, and workshops in helping you learn the course material.

It was helpful when we broke up into small groups & discussed the issues. Then in the larger group we went over what the many purpose was.

comment

and

Appendix 9: Civil & Environmental Engineering Leadership Development Class

Syllabus & Instructor Evaluation Comments

CEE 698 Leadership Development – 3 Cr.
Spring Semester 2010

Course Description:

This course starts with learning the various concepts of leading others to accomplish a common goal. Concepts we will cover include leadership styles with self examination, human motivation, communication and problem solving. Students will put these learned concepts to work in their chosen project using feedback to improve their leadership effectiveness. Guest lecturers will present their personal views on the subject of leadership. Attendance is required and is included as part of the course grade. The lectures will provide the framework with assigned reading providing the in depth review. There will be two exams and a report on the leadership project due at course completion. The course grade will be determined by class participation, two exam scores and the final report and presentation. Examples from experience in the construction industry will be used extensively for explanation and discussion, the discussion will be applicable for any industry or organizational setting.

See eCOW2 course homepage for weekly outline and syllabus.

Course Objectives:

Provide a basic understanding of leadership concepts and styles, individual assessment and relevant coaching. After classroom discussion to gain an understanding of these concepts students are given an opportunity to implement and report on what was learned further enhancing understanding.

Class Schedule and resources:

Lectures are held two times per week for 75 minutes, on Tuesdays and Thursdays from 9:30 until 10:45 AM in 3349 Engineering Hall. All reading material is available on the eCOW2 site page which will be used for all course administration.

Assessment of student progress:

Class participation (10%), Homework and Quizzes (20%), Midterm (20%), Final Exam (20%), Leadership Project (30%).

Prepared by Norman R. Doll

"Knowing others is intelligence; knowing yourself is true wisdom. Mastering others is strength; masterin yourself is true power." -Laozi, Ancient Chinese Philosopher believed to have written the Tao Te Ching, Laozi books//

Leadership is lifting a person's vision to higher sights, the raising of a person's performance to a higher standard, the building of a personality beyond its normal limitations."

Peter Drucker

Civil and Environmental Engineering
CEE 698 004 Instructor Evaluation
Comments

This questionnaire is designed to provide student input for evaluating and helping to improve an instructor's teaching Please feel free to comment Number comments to correspond to question number.

3) Sometimes through the course of discussion the board become saturated with material. It has difficult to discern the order and structure of the material.

The description for the course project could have been a little more detailed in what the requirements for the proposal, final report, and presentation were.

5) The documents and course material were posted on the class website (I am not a huge fan of ecow so that is not the instructors fault), but it would have helped to have a description of what each document was in addition to the articles title.

Overall the course was very enriching. There was a lot of material to cover and I would have enjoyed going more in depth into all of the topics.

Overall this class was very beneficial and it was nice to only have a maximum of 10 students in the class. This allowed for a lot of student teacher interaction. I definitely think the course enrollment should stay this way. In addition, all of the concepts learned were very applicable and have provided me with a great resource.

I really enjoyed the class. Thanks!

The outline and/or course materials for this course should be replicated in other programs at the university. As a student outside of engineering, but one with at least some experience in the engineering industry, I was fine with the construction related examples used throughout the class. But a similar course tailored to the specifics of other professional programs would allow a more thorough and relevant discussion of leadership in each respective department. This type of class would be an enormously beneficial requirement in other professional programs on campus, where students need as much practice in leadership skills as they can get.

Pre-Publication Student Leaders' Research Paper from Civil & Environmental Engineering Leadership Class: *Leading With Heart*

WORKING DRAFT August 24, 2009

Leading with Heart in the Construction Industry: Preparing Level 5 Leaders at UW-Madison

By: Jeffrey S. Russell[1], Norman Doll[2], Kevin Orner[3], and George Sullivan[4]

Abstract

It is widely known that the construction industry needs leaders to *lead* construction projects not just *over/micro-manage* construction projects. At the UW-Madison we are crafting and implementing learning opportunities for all of our undergraduates such that they can acquire and develop the critical, yet intangible skills and values of "leadership," so we can have more comprehensive *leading* and less *micro-managing*. This study is under the umbrella of a larger objective: to design and offer an innovative, allied set of leadership development programs for undergraduates to acquire critical leadership skills, knowledges, and attitudes/values. Using the leadership strategies presented in Jim Collins' book *Good to Great* as a baseline, several executives and key subordinates of successful construction industry companies were interviewed to see if these leadership strategies were being implemented. To check for validation of the leadership principals, the executives were interviewed to understand their definition of success, leadership strategies, important accomplishments, view of financial resources, outside activities, and ideas for developing future leaders. Once validated, these leadership strategies can be translated to student learning and development. To understand the current leadership training of students, a number of students from UW-Madison were interviewed to understand how accessible leadership opportunities are to them and if their current training is making a positive difference. The interview results are preliminary and we are working to implement more opportunities experiential and otherwise that reinforce students' acquisition of "Level 5 Leader" skills, knowledges, and values/attitudes.

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[1]Jeffrey S. Russell, Ph.D., P.E., Professor and Chair of Civil and Environmental Engineering at the University of Wisconsin-Madison, Russell@engr.wisc.edu

[2]Norman Doll, P.E., Adjunct Professor, of Civil and Environmental Engineering at the University of Wisconsin-Madison

[3]Kevin Orner, recent BS CEE graduate, UW-Madison, currently serving in the Peace Corps and studying for his MS at Central Florida University.

[4]George Sullivan, undergraduate student, Civil and Environmental Engineering, UW-Madison.

Overview

> *What if the crisis of 2008 represents something much more fundamental than a deep recession? What if it's telling us that the whole growth model we created over the last 50 years is simply unsustainable economically and ecologically and that 2008 was when we hit the wall – when Mother Nature and the market both said: "No more." – Thomas L. Friedman,* New York Times *New York Times March 8, 2009*

Now more than ever engineers must harness technical knowledge and creativity together, and craft solutions to complex grand challenges such as the innovation of clean, affordable, and reliable energy. Engineering education must offer students the best knowledge and tools available to do this. The National Academy of Engineering (NAE) states that twenty-first century engineering education must integrate critical core competencies into the undergraduate curriculum in order to *tackle the grand challenges of tomorrow* – one of the critical competencies is leadership skills, knowledges, and attitudes/values. *The Engineer of 2020: Visions of Engineering in the New Century* (National Academies Press, 2004) states that engineers rise to serve as business leaders as well as nonprofit and government leaders who must guide policy decisions that are technologically intricate and demand leaders who understand the strengths and limitations of science and technology.

Engineers must understand the principles of leadership and be able to practice them in growing proportions as their careers advance. They must also be willing to acknowledge the significance and importance of public service and its place in society, stretching their traditional comfort zone and accepting the challenge of bridging public policy and technology well beyond the roles accepted in the past.

This study breaks apart the large, unwieldy concept of students must "understand the principles of leadership," which is clearly a critical competency for engineering education today, and explores and describes successful engineer-leaders with a widely accepted model for leadership excellence found in Jim Collins' book *Good to Great*. This inquiry offers several results: (1) students had the opportunity to interview and learn from exceptional leaders via qualitative research methods; (2) students had the opportunity to apply a leadership model as a framework to describe leadership in action and its non-formulaic nature; and (3) the synthesis and analysis of the data offers material to design innovative curriculum changes that enhance the current leadership learning opportunities at the UW-Madison College of Engineering.

These results embody a series of leadership curriculum initiatives now underway at UW-Madison. The *Leading With Heart* project is just one of several theory-based explorations that are enabling us to create engaging, student-centered, experiential leadership learning opportunities. This study is under the umbrella of a larger objective: to design and offer an innovative, allied set of leadership development programs for undergraduates to acquire critical leadership skills, knowledge and attitudes/values. Please note that throughout this document the concept of a *theory* (a tool that allows us to explain the past or predict future outcomes) is being used interchangeably with the word *model*.

A Context for Leadership Curriculum Development

Several theories operate in concert to guide our curriculum innovation with the Social Change Model (SCM) (Komives and Wagner, 2009) as the primary, overarching framework. The nationally-recognized body of knowledge found in the SCM provides sound theoretical grounding for our curriculum initiatives based on the premise that leadership can be learned, and that it is a process rather than a position, recognizing that everyone has the potential to be a leader. The goal of the SCM is to enhance student leadership development and learning in key content areas of individual, group and community values. The central principles of the SCM say leadership is "purposeful, collaborative,

values-based" and "results in positive social change." The ultimate goal of the SCM is that students will have increased capacity to mobilize self and others to facilitate positive social change at UW-Madison and beyond, thus creating better citizens and future leaders. The SCM focuses on seven core values needed to become a successful leader and effect positive social change. Our leadership curriculum initiatives integrate and address each of the seven values: Consciousness of Self; Congruence; Commitment; Collaboration; Common Purpose; Controversy with Civility; and Citizenship.

In addition to SCM (a leadership model), we have found that the pedagogical concepts within the Culture-based Education (a pedagogical model) offer a solid "map" to design effective, relevant, and engaging leadership programming for our students. Culture-based Education is a holistic approach with the learners' needs at the forefront. Characteristics of Culture-Based Education (CBE) (Northwest Teacher Induction, 2009) include: integrating traditional cultural knowledge with current "western-based" educational content and performance standards in the core areas of science, mathematics, social studies and language arts; and utilizing placed-based educational strategies that are experiential and student driven. In CBE the focus is on the student; the context of learning demands that it is useful, applicable, and relevant; the content that is both cultural and academic; and spirituality or the source of empowerment is also considered. We have found at the outset that using these two models together are effective, and allow us to run additional studies like *Leading With Heart* to explore and describe leadership from different angles that inform future curriculum design that pioneers new leadership learning at the UW-Madison College of Engineering. We will revisit these models throughout the following *Leading With Heart* report, and within the *Recommendations* section specifically.

"Good to Great" Applied to Construction Industry

Jim Collins' book *Good to Great* strived to understand why good companies became great companies and how they accomplished that transformation. Their study looked at eleven companies that showed remarkable long-term success in comparison to other similar companies in their field. As they studied these eleven companies, many common themes emerged. One theme that emerged from the study that will be explored here is the presence of what Collins termed "Level 5 Leaders", people who have both "personal humility" and "professional will." Success for a Level 5 leader is defined not as a personal achievement but a company achievement that will outlast his or her tenure. Level 5 leaders often do not look inward in praise for the company's success, but deflect the praise to others. They are modest yet willful, shy yet fearless. Level 5 leaders possess high standards and will not accept mediocrity.

To validate the claim that behind a successful company is a level 5 leader, a number of executives from leading construction organizations in Wisconsin were interviewed. While many are private companies and do not share their financial information, their financial success can be substantiated by personal conversation, sales and geographic growth. The people interviewed were a very select group that will be expanded upon as the study continues. As the executives were interviewed, their answers were compared to the definition of a Level 5 leader presented in *Good to Great*. Key subordinates of the executives were also interviewed to provide a different perspective on his or her leadership. Both the executives and key subordinates responded on the definition of success, leadership strategies, important accomplishments, view of financial resources, outside activities, and ideas for developing future leaders.

With the framework of the *Good to Great* Level 5 leader being validated by the responses in the executive and subordinate interviews, these principals can be translated to student learning and development. The executives provided responses to what motivations and strategies they used as a leader, but also provided ideas on how to put them into practice for students to develop their leadership potential and skills. In order to understand the current level of understanding of leadership, several students were interviewed on many of the same topics as the executives, including the definition of success, leadership strategies, important accomplishments, view of financial resources, outside

activities, and ideas for improving their leadership development. With the baseline knowledge of students' current understanding of leadership and with the validation of Level 5 leadership from the executive interviews, recommendations on how to develop these principles in students through activities and experiences are provided.

I. *Leading With Heart* Project – one campus initiative for leadership learning discovery

Executive's Perspective

Background

Six executives and four key subordinates (see Table 1) were interviewed as part of the research on the construction industry. The executives were initially chosen upon recommendation from personal contacts of the faculty at the University of Wisconsin Madison College of Engineering. The executives come from a mix of disciplines within the construction industry including highway, mechanical, electrical, general, builders, and construction equipment. With each of the interviews, the interviewee was asked to recommend other leaders who might be willing to participate.

The interviews for the executives and key subordinates were conducted using three mediums six were done in person, three were done by phone, and one was done by e mail. The questions were sent to each person before the interview so that they would have some time to look over the questions and prepare their answers in advance if they so wished.

Table 1 - Profile of Executive Interviews

Interviewee Classification	Construction Industry
Executive	6
Key Subordinate	4

Definition of Success

All six executives defined success in similar ways—the executives all had high regard for the financial well being of their business. This was expressed by individuals noting that success of their company meant leaving the job in a better condition than when they started, returning shareholder value, achieving market diversification, expanding geographically, exceeding industry benchmarks on profitability, lowering personnel turnover ratio, or having a high reputation for their company.

The executives all defined success in other less financial ways. One executive said that success would also be seeing your staff energized for the right reasons and working together for a common goal. Another would ask whether their employees were achieving career fulfillment, stability, financial success, and daily enjoyment from their jobs.

Success for two also meant a balance of their job with their home life. Relationships with their spouse, their children or in some cases grandchildren were all deemed very important. Success even reached to the church, the community or, as one executive said, "leaving good in every person you touch."

Executive Leadership Strategies

The executives' view of success impacted the way he or she directed the company. The responses below are not simply leadership attributes, but actions and behaviors. The leadership strategies that executives currently use are important because future leaders can learn these leadership

strategies to facilitate their own leadership development. The responses are ordered from most frequent to least frequent. Some responded with one general strategy, while others listed many, thus some executives may use these leadership strategies but may not have mentioned it in their answer. The numbers below are the number of times the leadership style was mentioned out of the six executive construction industry interviews.

- (6) Surround yourself with good people. *All the executives agreed that the company is only as good as its employees. As an executive, you have a powerful input into who works alongside of you. Get good people who share your philosophy. Delegate work to them and trust that they will get the work done. Spend time with them and hand off your knowledge. Know what motivates them to get things done.*

- (5) Lead by example. *Just about all of the executives said that they lead by example, which translated into a couple different meanings. One meaning is that they would be willing to do anything they would ask of their employees. Secondly, they would set the tone for the work culture by acting in the manner in which he or she would like his employees to act. Treat others the way you want to be treated.*

- (4) Use consultative decision□making. *As you surround yourself with knowledgeable people who you trust, reach out to them for important decisions. An executive noted that, "Humility is incredibly important. I have seen so many people fail because of arrogance. It creates blind spots. That doesn't mean that you are not confident or driven or proud of accomplishments. It means there is always more to learn and that others are smart and knowledgeable." Another executive said, "Digest input from all kinds of people and turn that into an action plan that turns out results from everybody."*

- (3) Make decisions. *While it is important to gather others' input, realize that consensus is not essential. One executive said that, "Young people think consensus is the highest ideal, but it's the lowest common denominator. You need a decider, a team leader, the 'n+1'. When the time is right, you need to act and move forward."*

- (3) Set Goals. *Once you have a strategic plan, set goals to get there. Set goals that are realistic but not easy.*

- (3) Be Accountable. *Once the expectations are clearly set, a person will know what decisions he or she is allowed to make. Trust that each person will achieve what he or she set out to do. People need to own their business and their objectives. It is okay to ask for help along the way and mistakes will happen. At the end of the day, you are accountable for your work, so do not blame others for your own mistakes. In the words of one executive, "Do what you say you're going to do—you owe it to yourself and those around you."*

- (3) Know yourself. *Before you go out leading others, you have to know who you are and stay true to yourself. Know your values.*

- (2) Use Planning. *Knowing and internalizing the mission of your company is essential. A broad strategic mindset that correlates to the company's mission is important to set the future direction of the company. Gather input from a wide variety of people and respect their ideas. Be an active listener. One executive emphasized knowing your costs—how much time, money, and other resources are you investing in a project? Are you sure that's going to be worth the return you get*

on that investment? Look over the horizon and be proactive, not reactive, to the upcoming challenges.

- (2) Identify with role models. *Be true to yourself, but also remember other leaders in your life. What made them a good leader? What could they have done better? Pick and choose qualities of people you enjoyed working for. Seek out similar people who are a step ahead of you and figure out how they got there.*

- (2) Have fun along the way. *If you spend some many hours of your life doing one thing, make sure you enjoy it.*

- (1) Be Transparent. *The following points were made by one executive, all relating to transparency. It should be noted that transparency does not happen if there is no trust in the executive. A culture of trust must be built first. 1. No surprises—the earlier you know about something, the more prepared you'll be to address any potential issues 2. Bad news first—communicate the problem up front, then work with team to find solutions 3. Full disclosure—share all relevant information with your team, so they fully understand the situation's challenges and opportunities and understand the direction they need to take*

Important Accomplishments

All six executives listed some of their important accomplishments, both as a company and as an individual. Like their definitions of success, the important accomplishments of an executive extend beyond finances to people and relationships. Many companies celebrate their "people first" attitude to the public, but authentic relationships reach beyond a popular expression. Either you consistently strive to help others or it is just a façade. It is the action of caring about people and maintaining relationships that was emphasized by many of the executives. One executive said that, "People matter most: Not money, not a great title, nothing matters more than being part of a network of people who care about each other."

Many company accomplishments were strategic in nature—refocusing on the mission, heading into the correct field of business, or designing an incentive system. Part strategic and part culture, other executives mentioned high financial or safety ratings of their company. The human side of business starts with the culture of the company. Hiring the right people, creating a high□care attitude, and acting with honesty and integrity were a few of the specific responses by executives. Also emphasized were keeping up with their family responsibilities.

View of Financial Resources

Each executive responded with their view of their company's financial resources. Acting as an executive of a company often gives one great influence over the use of the financial resources of the company. In defining success for a company, over half listed giving back as part of their company's success. A common response was being a steward of the money, not owning the money but using it to the best of their ability towards their view of success. For a company to survive and give back, the business needs to do well financially. An executive said, "Although money is not the primary driver, however, given the personal financial investment in the firm and the risks associated with that investment, a return on investment is important."

Outside Activities

Like with their money, most executives mentioned using their time to benefit their company, family, and community. Over half of the executives listed serving on boards and being with family as their primary outside activities. The executives' expertise allows them to make a difference advising,

coaching, mentoring, and providing opportunities in many organizations. Said one executive, "Be generous: Whether it's your time, your money, your connections—you have gifts and talents to share that other people need. Get involved with charitable organizations, donate to a cause you believe in, be a mentor on someone else's personal advisory board."

Developing Future Leaders

The executives had a wide variety of ideas for developing future leaders. Below is a summary of some of the ideas mentioned. There is some similarity between the leadership strategies that executives exhibit and how to develop those leadership strategies in future leaders. The responses are ordered from most frequent to least frequent. Some responded with one general strategy, while others listed many, thus some executives may use these leadership strategies but may not have mentioned it in their answer. All six executives replied to this question.

What students can do

- (4) Understand the bigger picture. *The world does not revolve around engineers. Learn how an engineer fits into the bigger world… take classes outside your major, travel, and intern, whatever you need to do. One executive was specific, saying, "Engineers need greater depth of exposure outside of engineering. Learn about the environment, business, and psychology. One way to do this is through extracurricular activities."*

- (3) Get involved. *Student organizations provide learning opportunities a classroom cannot provide, including hands on experience, social interaction, and leadership opportunities. Serve, learn, make mistakes, and find out how to get elected.*

- (3) Know yourself. *Be passionate about something. Be intellectually curious. Look within yourself and grow. Promote your strengths, improve your weaknesses. A helpful framework entitled "Build Yourself" can be found in the Appendix. You have to be comfortable with yourself before you can lead others.*

- (2) Communicate effectively. *Many executives knew that communication was important for business success, even if it meant taking additional classes. One executive said that,* "Engineers often communicate poorly, whether it is their innate personality, their shyness, or a lack of public speaking experience. Communication is very important in the business setting, whether oral, written, or visual. If you cannot communicate, you cannot succeed. Communication is the key in leadership. It needs to be a part of every class."

- (2) Intern or co-op with a company. *Internships are a great dose of reality. You see what the profession is like and they get to see if you fit into their culture.*

- (1) Learn a foreign language or study abroad. *A great way to understand the bigger picture. One executive mentioned specifically learning Chinese and Arabic. Understand a new culture.*

What mentors can do

- (2) Offer and effectively publicize a variety of leadership opportunities. *Leadership opportunities can be found in classroom projects. However, more opportunities can often be found in student organizations. Encourage student organization involvement.*

- (2) Provide clear expectations. *Know what decisions people can make and allow them to make mistakes. Put them in situations to succeed while allowing small failures.*

- (2) Guide, don't command. *One executive noted, "Leave them in charge of themselves. Guide rather than command their exploration with their full permission. Become a supportive partner in their learning process. Help them learn things about themselves that perhaps can be learned in no other way. Follow their energy. Enhance their self-esteem. Encourage their creativity."*

- (1) Know the student. *Get to know the students on a non-superficial level. Encourage a student to look within themselves and grow. Provide honest feedback. Recognize a person's strengths and promote them. Identify a person's weaknesses and improve them. Take time for one-on-one time for feedback and advice. Watch them on a day-to-day basis. Be available for follow-up sessions. Have training available. Students need role models that aren't athletes or rock stars.*

Analysis of Key Subordinate Interviews

The key subordinates responded to questions relating to their executive's leadership strategies, view of financial resources, and outside activities in order to provide a different perspective on the executive's leadership and to validate the statements of the executive.

The statements made by the key subordinates in response to the executive's leadership strategies directly aligned to the executive's own statements, often word for word. In the key subordinate's reflection on his or her own leadership strategies, they all responded with the same strategies. Like the leadership strategies, all the key subordinate responses on the executive's view of financial resources and outside activities were matched. It appears that the key subordinates have a clear understanding of the executives and that the actions of the executives match their statements.

Students' Perspective

Background

The second part of the study was interviewing students. As shown in Table 2, there were fourteen students interviewed. Each student has had extensive work with the student organizations that they have been involved with. The two student organizations that the students have been actively involved with are the Concrete Canoe Team and Engineers Without Borders (EWB). It must be noted that the students chosen do not represent the entire student body of the College of Engineering at the UW-Madison.

Table 2 - Profile of Student interviews

Concrete Canoe Team	Engineers Without Borders
7	7
Total number of students	14

The Concrete Canoe Team and EWB were chosen because of their significant growth and success over the past six years. Seven of the students were involved with EWB. Three of the students involved with EWB were male, while the other four were female. Three of the students involved with the Concrete Canoe team were male, while the other four were female as well. Those students involved with the Concrete Canoe team bring a total of 25 years of experience to a team that won five straight national championships beginning in 2003; a feat done by no other team. To put this in perspective, only seven other schools have won a national championship in the twenty-two years of the National Concrete

Canoe Competition being held. Those students involved with EWB bring 20 years of combined experience to their organization that has grown tremendously since its beginning in 2003. EWB is currently involved with five community development projects around the world. The projects include building a waste water collection system in two communities in El Salvador; improving water quality, agricultural techniques, and agro-forestry production in Orongo, Kenya; improving the locally used cook stoves and farming practices in Muramba, Rwanda; building a hydro electric generator at the water source to bring electricity to the community, designing a material efficient concrete beam/roof for widespread use in the community, and building a Health Clinic with a sustainable and efficient design in mind; and providing groundwater drainage and storm water management infrastructure in Red Cliff, Wisconsin. The ability to create, fund, and see projects from cradle to grave in third world countries speaks volumes to the work of the students involved.

Each of the students had their own reasons for choosing to attend the University of Wisconsin-Madison. All of them mentioned that Madison was a great school socially and educationally. Eleven out of the fourteen students mentioned in-state tuition as being a major part in their decision to attend the UW-Madison. Nine of the fourteen interviewed said that the quality of education within the engineering school based upon rankings was a major factor in their choice for attending the UW-Madison. The other five students were undecided on a major when choosing schools. They mentioned the broad array of degree opportunities available to them as a major reason for choosing the UW-Madison.

Summary of interview's main points

The interviews were conducted over the phone, through e-mail, and in-person. The interview questions were sent to each student before the interview so that they could have some time to look the questions over and get some ideas on how to answer the questions.

The following paragraphs illustrate the main points of the interviews. These main points show the qualities of a "Level 5 Leader". These qualities resemble those described by Collin's and the executives' recommendations for developing future leaders.

Each student had their own way of answering the questions. However, the answers shared common aspects to their responses. For example, one student mentioned that an important characteristic of a team is having mutual respect for one another. Another student said that having a sense of team belonging as being an important characteristic of a team. While these answers may appear different, they are related in that having mutual respect for fellow team members brings about a sense of team belonging. Seven out of the fourteen students mentioned mutual respect or team belonging as an important characteristic to have in a team. Each team member has to feel that what they do for the team is important. This feeling can only come from mutual respect of team members. Having the right people on board the project will foster this mutual respect for one another. The leaders on the team must have respect for the other members because they do important work just like the leaders. The other members must have that same respect for the leaders of the team because without the leaders, the team would have no direction. Another example comes from a student that said that a common goal is an important characteristic in a team. However, another student said that every member has to have the same focus or vision. Five of the fourteen students said a common goal was an important characteristic of a team. Each team member has to know what the goal of the project is. That way, every member will be able to work in their own way towards that one single goal.

Four of the students noted communication as an important characteristic of a team. This answer parallels a leadership style recommended by the executives for developing future leaders. All of the students did not know if they had a "leadership style". However, six students said their leadership style was trying to lead by example. This answer coincides with the one of the leadership strategies mentioned by executives. Delegating responsibilities and work to other team members was another

leadership style that four students mentioned. This style shows that the leaders know they have the right people around them and they trust those team members to get the work done.

These examples of interview answers show that these students are on their way to becoming successful leaders. They have taken leadership positions within their classes and within their respective student organizations. They are getting some practical experience as leaders. The majority of the students have had no class to learn leadership theory. However, they are learning what it takes to take a team and create a successful project.

Summary of Student's Main Points

- Mutual respect for all team members
- Common goal for everyone to work towards
- Two leadership strategies of students are trying to lead by example and delegating work to team members

Figure 1 – Summary of Student's Main Points

Qualitative Data – What students say they already have

All of the students feel prepared or feel that they will be prepared to enter into the profession once they have graduated from the UW-Madison. They realize they are learning the technical skills required to succeed in the career of their choice.

Eleven of the fourteen students said that the leadership opportunities are abundant within the College of Engineering at the UW-Madison. Of those eleven, six students said that the student has to be willing to be in the effort to get involved and be committed to the opportunity. The leadership opportunities are not available to those that just sit around, but available to those seeking the opportunities and wanting to become leaders. Being involved with these student organizations gives the student the opportunity to be put into a leadership position that they would not normally be in. The students in leadership positions within concrete canoe and EWB have embraced the role and flourished as can be seen by the student organizations' recent success. The success of these student-run organizations over the past few years is remarkable. The students have grown into leaders by themselves. These students have had no formal education or training in leadership.

What students say they need

The students realize that they need to be well educated in communication. Six students emphasized the need for more public speaking classes. The students know there are public speaking and writing classes available for them to take. However, the students want these classes to be mandatory. They also want more than just one class required for graduation requirements. One student brought up the topic of soft skills or skills that are not technical skills. Communication skills such as being able to speak and write effectively are examples of soft skills. This student wanted the engineering degree to integrate the soft skills with the technical skills more than what it does now. While the technical skills are important in the engineering world, the soft skills are becoming just as important. The students today are beginning to realize this and they are demanding it.

Eight of the fourteen students would also like to see more group projects given to them by professors. The students realize the importance of teamwork and would like to have the experience working with others. Some of the students even suggested having the professors pick one student to be the leader of the group. This student would then be in charge of delegating tasks so that the project will be completed on time. By forcing one student to be leader, it forces the student to take responsibility of

the project. Without being forced into the leadership role, that student may never be able to get that leadership experience. Another student suggested having the leadership role rotated between group members. That way, each student would gain the leadership experience instead of just one student.

All of the students would like to learn more about leadership and how it can be applied to their careers. They would like to have classes that explain leadership theory. Along with the theory, all students said they want a leadership class that allows them to practice the leadership theory that they have learned. Two of the students had the idea of having these leadership classes offered to freshman and sophomore undergraduates instead of just the junior or senior undergraduates. Perhaps, the theory class should be taught to the younger students while the practical application class should be taught to the older students. The older students will have more technical knowledge to apply the knowledge to real life situations. Teaching theory to younger students will allow them to soak in as much as they can without having to worry about in depth group projects. The older students can take the theory learned and then apply them to in depth group projects in the leadership class and in other classes.

II. Larger Campus Leadership Curriculum Development (Recommendations)

Leading With Heart Project Recommendations: From Executives & From Students

For this one, specific project the students' comparison of the preliminary descriptions of industry leaders leadership styles and skills, with Collins' "Level 5 Leader" findings illustrates that successful leaders do set high expectations for themselves and their organizations, and that the, "paradoxical blend of personal humility and professional will" (Collins, 2001) indeed is present, and does seem to correlate with success. These interviews with successful leaders and others provides critical input for our campus' creation of quality educational experiences that advances leadership development for our students.

Figure 2 shows the three most common recommendations from executives and students. These recommendations are ways to foster student development into a "Level 5 Leader" from the executive standpoint and the student standpoint.

Executive Recommendations	Student Recommendations
• Encourage students to understand themselves and the bigger picture they fit into • Provide leadership and communication opportunities, both in principles and application • Create non-superficial relationships for mentoring and coaching	• Would like to see a greater emphasis on communication skills • Would like classes to have more group projects where each team member has the opportunity to be team leader • Would like a leadership class that teaches theory and has practical applications

Figure 2 – Executive and Student Recommendations

With these recommendations in hand, we turn to the larger, campus' leadership curriculum development initiatives with the objective: to design and offer an innovative, allied set of leadership development programs for undergraduates to acquire critical leadership skills, knowledges, and attitudes/values we can place these observations and the industry leaders' thoughts on students'

leadership development within the framework of our guiding model, the Social Change Model (SCM) of leadership; and set forth preliminary recommendations for curriculum development. The industry leaders' thoughts on "what students can do" to build their leadership skills is reflected in the seven values within the SCM (Consciousness of Self; Congruence; Commitment; Collaboration; Common Purpose; Controversy with Civility; and Citizenship). Given the similarities the first recommendations based on the *Leading with Heart* Project include:

(1) to design and offer (and possibly require) more opportunities for undergraduates to explore their Citizenship in the bigger-than-engineering world; co-ops, internships, non-engineering experiences, humanities learning, etc.

(2) to offer incentives for undergraduates to get involved in student organizations and consciously practice Collaboration as well as Common Purpose

(3) to integrate self-awareness inside and outside the classroom learning experience in a nod to one of the foundational knowledges: Consciousness of Self

(4) to emphasize effective communication skills (written, oral, interpersonal influence, diplomacy, etc.) via the Student Leadership Center's programming, the Dean's Student Leadership Class,the on-line Leadership module, and the two additional leadership courses offered in the College of Engineering which address the values of Collaboration; Common Purpose; Controversy with Civility; and Citizenship.

(5) to encourage that required classes include more group projects where each team member has the opportunity to be team leader and connects with Congruence; Commitment; Collaboration; Common Purpose.

(6) to offer a leadership class that teaches theory and has practical applications; this course is currently being designed and will be offered as an online module in the fall of 2009 and will be built around all seven core values.

All recommendations and the subsequent initiatives stemming out from *Leading With Heart* Project will also be anchored in the pedagogical Culture-based Education model with the learners' needs at the forefront.

Next Steps

The study will continue throughout the next year. The samples of executive and student interviews will increase. The recommendations will be implemented within different student organizations and different classes within the College of Engineering at the UW-Madison. The results will be monitored and best practices will be developed.

Conclusion

"Level 5 Leaders" are people who have both "personal humility" and "professional will." They measure success not as a personal achievement but as a company achievement that will outlast his or her tenure. Level 5 leaders often do not look inward in praise for the company's success, but deflect the praise to others. Top executives and their subordinates from leading companies around the state were interviewed. The definition of success, leadership strategies, important accomplishments, view of financial resources, outside activities, and ideas for developing future leaders were all topics covered by the interview. The answers given by the executives and subordinates were compared to the definition of a Level 5 Leader given by *Good to Great.* A group of students from the UW-Madison were interviewed

as part of the study as well. They were chosen based on their involvement with successful student organizations. These students were given a set of questions very similar to the executives and subordinates.

The strategies, accomplishments, and views of leadership have created an example for others to follow. The executives stressed leadership strategies such as leading by example, surrounding yourself with good people, and using consultative decision making as ways to garner success. Accomplishments that were people based and not financial based were more important to the executives. One important idea that came up in many different areas was that money was not the most important thing. Making money was not the definition of success for the executives. Making money was not the greatest accomplishment for the leading companies. The personal humility and professional will can be clearly seen by the way the executives run their companies.

The students' view of leadership is not well understood. Lead by example was the majority response to their leadership style. All the students were quite unsure of how to answer this question. There was no confidence in their answers. This lack of understanding leadership shows a need for leadership education or training. Not only do the students need it, they want the leadership education or training. They want to be taught about leadership. They want actual classes that teach theory and have a practical application. The students in leadership positions within their respective student organizations are going beyond the classroom to learn about leadership. They are getting leadership experience firsthand; almost learning on the job.

The development of future leaders is essential to the success of every company, no matter what field they are in. There are ways that students can development themselves and ways that mentors can help. Students can get involved, understand the bigger picture, know themselves, communicate effectively, intern or co-op with a company, and learn a foreign language or learn a new culture. Mentors can get to know the student on a non-superficial level. They can publicize leadership opportunities effectively and provide leadership exposure. Mentors can also help the development of future leaders by guiding them, and not commanding them. The development of future Level 5 Leaders is a long term process. Leading with heart will help those who want it to become successful Level 5 Leaders.

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Appendix A: Executive Interview Questionnaire

I. PERSONAL REFLECTION ON YOUR LEADERSHIP STYLE AND VIEWS

How would you describe your leadership style i.e., specific examples?

Who personally influenced you as a leader? Who are your leadership role models and why?

How do you define success for yourself?

II. IMPACT OF YOUR LEADERSHIP STYLE

Could you give us some idea of where your organization has come from and where it is now? (e.g., 3 of employees then and now, sales maybe, something that indicates its progress and development, # offices, #employees)

What would you say is the most important accomplishment of your organization during your tenure?

What would you say is your most important personal accomplishment?

III. PROJECTING BEYOND YOURSELF AND ORGANIZATION

How do you view financial resources? If you do not mind me asking, what do you acquire and do with your disposable income?

What activities are you involved in outside of your professional work? Why?

IV. ORGANIZATIONAL TRANSITION AND LEADERSHIP SUCCESSION PLANNING

What would you say is the *one or two most important* traits to develop in your key leadership team?

Have you selected your successor or potential successor(s)?

If yes, how long have they been with the organization?

V. RELATIONSHIP TO SERVING OTHERS AND YOUR LEADERSHIP STYLE AND VIEWS

We've identified some important traits that others have shown us you have, things like humility, helping and serving subordinates, giving all the credit to others, putting the needs of the organization and society in front of your needs.

What influenced you to adopt these traits?

Do you consider them important for leading your organization?

How would you go about developing those traits in future leaders?

How familiar are you with servant leadership?

Do you feel your organization fosters a servant leadership environment? If so, how?

VI. TRANSLATING EFFECTIVE LEADERSHIP TO COE STUDENTS AND RELEVANT LEARNING AND EXPERIENCES

At our University in the College of Engineering, we are attempting to develop leadership traits in our students in several ways, including specific leadership education combined with leadership of student organizations, leadership projects of a wide variety, and community service projects including international relief efforts. Do you think we will provide lasting impact with this effort?

Do you have ideas on how to operationalize these concepts for us in this effort?

Do you think each student should have leadership training?

What challenges will future leaders have to face?

VII. NEXT STEPS AND FOLLOW-UP

Would you be willing to provide a 1 hour lecture to our students around this topic?

Are there other leaders you would suggest we visit with? If yes, who are they and why should we visit with them?

Anything else you would like to add or that we missed in trying to understand your leadership style?

Would you be willing to review the draft paper and offer suggestions and comments?
Do you have any subordinates we could interview to get a broader picture of your leadership style?

Appendix B: Key Subordinate Interview Questionnaire

I. RELATIONSHIP TO LEADER

How long have you known this executive leader?
How did you get to know this executive leader?
How long have you worked with them?

II. PERSPECTIVE ON THEIR LEADER'S STYLE

How would you describe their leadership style?
How important is personal gain (wealth and recognition) to them?
How much are they ego or 'top-dog' driven?
If you do not mind me asking, what things, or kinds of things do they do or acquire with their wealth?
What activities are they i.e., the executive involved in outside of their professional work?

III. PERSONALIZING WHAT YOU OBSERVE TO YOUR OWN LEADERSHIP STYLE AND VALUES

How would you describe your own leadership style?
What outside activities are you involved in?
If you do not mind me asking, what do you acquire and do with your disposable income?
Who are other leaders that you admire and why?
Do you read or attend any formal education programs to improve your leadership skills?
Are you proactively developing other leaders in the organization? If yes, how are you doing this?
Do you have specific leadership skills you are trying to develop?
Do you have other comments, suggestions, or views on leadership you would like to share with us?

IV. NEXT STEPS AND FOLLOW-UP

Are there other leaders you would suggest we visit with? If yes, who are they why should we visit with them?
Would you be interested in reviewing our paper?

Appendix C: Student Interview Questionnaire

I. BACKGROUND

Why did you choose to attend the UW – Madison?
What were some of the deciding factors in your decision to attend UW – Madison?

Student Organizations:

How did you get involved?
How did your role grow over time?
What is your current role?
What do you feel are the one or two most important characteristics to develop in a team?
If you are in a leadership position, have you selected a successor or how does your organization choose new leaders?
What are the reasons for your organization's success?

II. PERSONAL REFLECTION ON YOUR LEADERSHIP STYLE AND VIEWS

How would you describe your leadership style i.e., specific examples?
What other activities had a significant impact on your leadership style?
Who personally influenced you as a leader? Who are your leadership role models and why?
How do you define success for yourself?

III. IMPACT OF YOUR LEADERSHIP STYLE

What are your priorities when you decide on your vocation after your schooling is done?
What would be your ideal vocation after you graduate?
Do you feel that you are well prepared for your future endeavors?
How do you view financial resources? If you do not mind me asking, what do you acquire and do with your disposable income?

IV. TRANSLATING EFFECTIVE LEADERSHIP TO COE STUDENTS AND RELEVANT LEARNING AND EXPERIENCES

At our University in the College of Engineering, we are attempting to develop leadership traits in our students in several ways, including specific leadership education combined with leadership of student organizations, leadership projects of a wide variety, and community service projects including international relief efforts.

How accessible do you feel these leadership opportunities are to you as a student?
What could be done to improve the development of leaders in the College of Engineering?

Classroom

Are you aware of any leadership classes being offered? What would you like to learn?
How have you been encouraged to take leadership roles in your classes?
Are there classes that encourage leadership roles more than others? If so, which ones?
How could professors better enable leadership growth?
What professors do you look up to? Why?

V. NEXT STEPS AND FOLLOW-UP

Are there other student leaders you would suggest we visit with? If yes, who are they and why should we visit with them?
Anything else you want to add or any other general comments?
Would you be willing to review the draft paper and offer suggestions and comments?

Appendix D: Build Yourself

Build Yourself

- Features: *Know who you are and who you want to be. What will your core values be? What about your strengths? Your attitude? What do you want others to think of you?*

- Design: *Once you know what kind of person you want to be, you can design a life path that will help you get there. The education and experiences you need, the type of career and family you want.*

- Plan: *Put your dreams and actions in place—what school you will attend, what companies you'll pursue, what extra□curricular activities you want to develop. But be willing to be flexible.*

- Skills/Resources: *Figure out what skills and resources you're going to need to meet your goals. Make sure you're always in the process of building your toolbox of skills. Just when you master one skill, you'll find there's something else to learn.*

- Team: *You're not going to get where you want to be on your own. You'll need family, teachers, friends, teammates—a whole network of people to provide you with information, guidance, connections, and support.*

- Time: *Invest in yourself. Take the time to focus regularly on your personal development plan—build on what is working, strengthen what isn't working.*

- Evaluation: *You're always going to be a work in progress. Stop along the way to get feedback from yourself and others to make sure you're still heading in the right direction and that you're staying true to the goals you set for yourself.*

Engineering News-Record's reports on UW-Madison's *Leading With Heart*

PROJECT MANAGEMENT

Center Promotes Leadership To Make Projects Manageable

Columbia University's first forum on construction-project leadership was built around the theme that project success requires leadership in addition to management. The forum drew more than 100 industry professionals to the New York City campus on Aug. 25.

Prevailing theories of project management are often inadequate because they largely ignore the dynamic environment of projects, particularly construction projects, said Alexander Laufer, director of the university's Center for Project Leadership. Laufer, a professor of civil engineering at the Technion-Israel Institute of Technology in Haifa, is a visiting professor at Columbia and established the center there last year.

Alex Laufer
COLUMBIA UNIVERSITY

"For years, theorists have talked about rethinking project management," Laufer said, while project after project continues to have poor results. One problem he identifies is a "persistent gap between the rigor of research methodology and the relevance of the research question." The center's philosophy is to work in close collaboration with industry to ensure that theories it develops will be useful and that practices and processes it advocates will be effective. The forum was part of that outreach.

Jeffrey S. Russell, chair of the Dept. of Civil Engineering at the University of Wisconsin, Madison, and Norman R. Doll, an adjunct professor at the same school and president emeritus of Puryear Electric Inc., Milwaukee, discussed their leadership research and efforts to teach leadership to students.

The team studied the work of Jim Collins in his book "Good to Great," which identified unexpected attributes of leaders, such as humility and a willingness to put the needs of the organization ahead of their own. Would the same leadership qualities be present in successful, regional construction companies?

Doll pointed out the work is qualitative and values-focused and that results are preliminary. But, he said, the construction leaders had a "significant focus on people with an emphasis on the right people—and that they lead by example."

Russell said Wisconsin's program delivers theories and skills in the classroom but also project-based experiences. "Planning is important but you must learn to be adaptive and flexible," he said. For example, in a project to develop a method to remove excess fluoride from drinking water that was causing skeletal deformities in a village in Kenya, students found that bone char filtration could solve the problem technically but presented cultural obstacles.

Scott Cameron, global project management process owner for Procter & Gamble, gave the group a self-check on leadership skills, inviting audience members to grade themselves from one to five on a list of questions about their leadership style (see box). He also described the five "Es" of "effective" leaders, who "envision, engage, energize, enable and execute." Project managers too often focus only on executing, also called "transactional leadership," Cameron said. At the top are "inspirational" project leaders, who bring attributes such as strategic focus, lateral thinking, courage, commitment and accountability, he added.

Jeffrey S. Russell — Norman R. Doll
UNIVERSITY OF WISCONSIN

Team studied the "Good to Great" qualities: a combination of humility and a tremendous personal will to get the job done.

Speakers and attendees also debated whether or not leadership can be taught in class. Terry Little, a consultant with Spectrum Group, Alexandria, Va., contended that leaders are "made" by the mentoring they get from their leaders. Laufer compared leadership to a muscle that "improves with practice, training and reflection." But Russell countered that a blend of formal academic education and real-world, practical experience is needed. "It's extremely important that we articulate that we expect students some day to become leaders," he said. ■

By Janice Tuchman, with Debra K. Rubin

Scott Cameron
PROCTER & GAMBLE

MANAGEMENT VS. LEADERSHIP

	MANAGEMENT	LEADERSHIP
PRODUCT	Order	Change
APPLIED	Continuously	Infrequently
INFLUENCE	Routine matters	Non-routine matters
FOCUS	Technical problems	Adaptive problems

ARE YOU LEADERSHIP MATERIAL? SCORE YOURSELF FROM ONE TO FIVE

To what extent do I empower others?
Does my behavior reflect my respect for others?
Am I consistent in demanding high quality for myself and for others?
How does my behavior affect the spirit of others?
How do I foster teamwork?
How do I encourage learning?
How would I feel if I were the recipient of my behavior?

Appendix 10: Chris Carlson's IYSE

ISYE 691

Engineering Leadership: Roles for the Future

Looking for a new course for Fall, 2008? Under the Engineering 2010 initiative, the Department of Industrial and Systems Engineering is offering a course designed to prepare students to become leaders as engineering professionals. The course will be led by Chris Carlson-Dakes, PhD, and guided by a faculty advisory board.

This innovative course will involve a semester-long Problem Based Learning project that builds on past courses, student experiences, and roles students currently hold in student organizations, community groups, internships and coops.

The course activities will lead the student through creating a business case, solution options, decision making process, implementation plan, and assessment plan, all with direct applications to a current role they have outside the class. A learning community designed to engage all students will blend time for self-reflection, peer reviewed feedback, group work, and open ended discussions allowing students to help each other successfully work toward implementing their individual projects.

Successful students will leave this course with skills, interest, motivation, and knowledge of how to continue their lifelong professional development in the following core areas:

- Overall communication including technical writing, formal and informal presentations, meeting notes, report writing
- Project management including scope definition, time management, team dynamics, communicating with internal and external constituents
- Personnel management including performance evaluations, delivering feedback, rewards and recognition, employee motivation, interviewing prospective employees.

This course will be of particular interest to seniors and students who hold leadership roles in student organizations. Open to all majors of Junior, Senior, or Graduate standing.

Meets: Tuesdays and Thursdays from 2:25-3:55. Enrollment requires consent of instructor. Please contact Chris Carlson-Dakes at cgcarlso@wisc.edu, 608-441-6629.

Syllabus: Core Competencies of Leadership

Engineering Professional Development 690, Course #53564, Section #17

To begin the course we will **meet in person on February 15th from 2:00-3:30 in the Tong Auditorium in the Engineering Centers Building**. If you are unable to attend in person or if you wish to revisit what was discussed, a recording will be available after the session.

Course Description

This one-credit online course is centered on the Social Change Model of Leadership Development. The premise of this model is that leadership can be learned. It is a process rather than a position. Everyone has the potential to be a leader.

This course will increase your capacity to mobilize yourself and others to facilitate positive social change at UW-Madison and beyond. The goal of the model and course is to enhance your leadership development and learning in key content areas of individual, group and community values. The central principles of the Social Change Model say leadership:

- Is purposeful, collaborative, and values-based
- Results in positive social change

The Social Change Model of Leadership focuses on seven core values needed to become a successful leader and effect positive social change. In order from individual to group to social values, you will study one value per week from the numbered list below. The final two weeks of the course focus on volunteer work of your choice, an opportunity for you to apply the values:

1. Consciousness of Self
2. Congruence
3. Commitment
4. Collaboration
5. Common Purpose
6. Controversy with Civility
7. Citizenship

While the curriculum is built around one leadership model, others will be explored. Several models will be compared the first day of the course. In addition, you will learn about values- and strengths-based leadership, and you will increase your self-awareness of your values and strengths. This will help you use your natural abilities to promote social change.

NOTE: This course satisfies the online-course requirements and counts as 15 hours toward the fulfillment of The Leadership Certificate program at UW: http://cfli.wisc.edu/leadership_certificate.htm.

Your Instructor

Alicia Jackson, Director
Student Leadership Center
M1080 Engineering Centers Building
1550 Engineering Drive
Madison, WI 53706
608-265-2899
ajackson@engr.wisc.edu

Alicia Jackson is the Director of the Student Leadership Center (SLC) in the College of Engineering (COE) at UW-Madison. In that role, she manages the day-to-day operations of the SLC; advises the 50+ registered student organizations affiliated with the COE; directs the annual Innovation Days competition; and co-teaches the Dean's Leadership Class (InterEng 400). Additionally, she serves as the advisor to Engineering EXPO and co-advisor to the Polygon Engineering Student Council. Prior to joining the COE, Alicia held the position of Special Assistant to the Dean of Students in the Offices of the Dean of Students at the UW and also spent several years working as Director of Diversity & Geographic Outreach for the Wisconsin Alumni Association. Alicia has a Bachelor of Arts degree in Communication Arts with an emphasis in Radio, TV and Film from the University of Wisconsin - Madison. She was born and raised in Racine, WI and has lived in Madison since 1996.

Course Activities and Requirements

Follow the weekly outline for guidance and to participate effectively. For each of the first eight weeks of the course, as you study one value of the Social Change Model per week after Week 1's introduction:

- Begin the week with the lesson plan, a summary of the week's objective and activities.
- During the week, review/discuss the course resources and complete the course activities on your own or in groups, as outlined for the given week.
- End the week with a written reflection, typically a couple of paragraphs.

For the last two weeks of the course you will select and perform volunteer work that is congruent with your values and strengths. Ideally, this volunteer experience will give you an opportunity to apply all seven values of the Social Change Model.

You will complete the course after completing all the course activities, including at least 10 hours of volunteer work during the final two weeks followed by a final report. Refer to the course outline for detailed instructions.

Participation in Discussion Forums

You are expected to add value to course discussions with thoughtful discussion messages and meaningful participation in discussion forums that reflects you've "done your homework" and read what others have already written.

As part of this course you are part of a learning community that shares a responsibility to supplement the pre-recorded materials and scripted activities with lively discussion and analysis.

Discussion forums enable you to share ideas, get feedback, and benefit from the knowledge and experiences of your classmates and instructors.

- Read what others have posted before making your contributions

- Keep your messages brief -- no more than 1-3 paragraphs
- Be professional, courteous and respectful of others' thoughts and time
- Don't be afraid to politely disagree with someone or state a different opinion -- that's what discussion is supposed to be about

Evaluation of Learning

You will be graded using a point system, a total of 100 points. The final report is worth 20% of the grade. All other required activities are worth 4 points each, a total of 80% of the grade (refer to the rubric at the bottom of the page).

Completion of volunteer work and final report (20 points)
Completion of 9 written journal assignments (36 points)
Participation in 6 class discussion forums (24 points)
Participation in 2 class wikis (8 points)
Participation in 1 group forum (4 points)
Participation in 1 group wiki (4 points)
Participation in 1 group chat (4 points)

A = 93 and above
A/B = 89-92
B = 84-88
B/C = 79-83
C = 70-78
D = 60-69
F = 59 and below

Loss of Points for Late Assignments/Participation

You are required to complete all of the activities outlined for each week on time. Weeks run from Monday through Sunday. Assignments are due by 8am on Monday of the following week, as noted in the course calendar.

Unless prior arrangements are made with the instructor or in cases of exceptional circumstances, the due dates listed in the course calendar are firm. It is your responsibility to follow the outline, plan ahead as needed, and submit your work on time each week. Late assignments or participation in weekly activities will result in the loss of 1 point per day for each overdue activity.

Points	Performance and Grading Criteria
4	• Exceptional quality (not quantity) • Evident that the learner has completed all readings/resources • Demonstrates applied level of understanding through personal reflections • Answer is well developed and logically reasoned • Provides original insights/responses, extending communication of others • Supports and leads others in discussion, respects others and their ideas
3	• Superior quality (not quantity) • Evident that the learner has completed all readings/resources • Demonstrates applied level of understanding through personal reflections • Answer is provided; logic may not be clear • Provides original insights or responses • Makes a connection to what others say, respects others and their ideas
2	• Satisfactory quality and quantity • Evident that the learner has completed all readings/resources • Primarily consists of summary or paraphrasing of readings • Answer is not fully developed; logic is not clear • Contribution is primarily a response to others, minimally original • Is respectful of others and their ideas
1	• Does not meet expectations • Not clear that the individual has completed readings/resources • Only consists of summary or paraphrasing of readings • Minimal effort put into answer

	• Is not respectful of others and their ideas
0	• Assignment not completed

Appendix 12: Online Sustainability Class

Syllabus: Core Competencies of Sustainability

EPD 693, Section 018, Spring 2013

This pre-project portion of the course introduces engineering students to sustainable design and development with the following weekly topics and course modules:

Week 1: [Course and Personal Introductions]
Week 2: **Science of Climate Change**
Week 3: **Carbon and Ecological Footprints**
Week 4: **Sustainability Frameworks**
Week 5: **Life-Cycle Thinking**
Week 6: **Effect of Consumption on Sustainability**
Week 7: **Relationships between Natural Resources and Energy**
Week 8: **Social Perspectives on Sustainability**
Week 9: **Green Building**
Week 10: **Green Chemistry**
Week 11: [Spring Break]
Week 12: **Innovation**
Week 13: **Integrated Engineering Practice**

Module:	Climate Change	Measurement Challenges	Systems Thinking/ Perspectives	Engineering Applications
Weeks:	1-2	3-5	6-8	9-13

Figure 1: The course is divided into four modules and organized by week.

Course Description

Module 1: After the introduction to sustainability in the first week, the class will focus on the importance and the scientific underpinnings of climate change.

Module 2: This module and the next module address core competencies. The class will explore the challenges of measuring sustainability by looking at carbon and ecological footprints, comparing different sustainability frameworks, and practicing life-cycle thinking and assessment.

Module 3: The core competencies in the previous module set the stage for deeper discussions and case-study analyses in this module. These discussions and analyses call for systems thinking and multi-disciplinary, global perspectives. To frame these discussions the class will discover the impact of consumption, the complex interplay between the use of natural resources and energy, and the ethical implications of unequal access to and use of natural resources and energy.

Module 4: After exploring sustainability through lenses from physical and social sciences, the class will turn its focus to engineering applications. Exciting introductions to and examples of green building, green chemistry, and other innovations will promote integrative thought and further exploration of engineering for sustainability.

Course Goals

Upon successful completion of this course, students will be able to:

- Describe the physical and chemical properties that govern climate change
- Calculate and analyze carbon and ecological footprints
- Compare and evaluate different sustainability frameworks
- Describe life-cycle thinking and assessment
- Explain the effect of consumption on sustainability
- Identify and assess the significance of relationships between natural resources and energy
- Recognize sustainability as a global challenge fraught with social inequity and requiring multiple perspectives and solutions
- Explain the importance of the built environment and green building
- Appreciate the importance of chemical engineering and green chemistry toward sustainable design and development
- Discuss how innovation can fuel sustainable development
- Synthesize course lessons as they relate to engineering applications

Your Instructor

Patrick Eagan is a professor at the University of Wisconsin-Madison, Departments of Engineering Professional Development, Civil and Environmental Engineering as well as the Gaylord Nelson Institute for Environmental Studies. At the Department of Engineering Professional Development Professor Eagan conceives, plans, conducts and evaluates adult professional education programs on industrial environmental engineering and management, and related environmental issues. Responsibilities also include program technical content and presenting selected lectures. Professor Eagan has delivered several outreach courses using distance-learning technology. He also teaches the independent study course in the online Masters of Engineering in Professional Practice.

Dr. Eagan has been actively involved internationally in the development of design-for-the-environment tools and education since 1992. He has worked with many companies tailoring educational programs on the emerging topics of environmental awareness, life-cycle management/design-for-the-environment, environmental management systems, and environmental purchasing. Dr. Eagan recognizes the value of quality concepts and has focused on merging environmental perspectives with quality education programs (e.g. design-for-excellence or six sigma). His favorite industrial ecology projects were the global rollouts of design-for-the-environment curricula at Motorola and Johnson & Johnson. In addition to his research in industrial ecology, his outreach courses include a range of topics including wastewater and stormwater treatment and restoration of water resources. He uses collaborative learning techniques and class exercises to meet his educational goals.

Professor Eagan's research interests lie in exploring frameworks that can move public and private institutions toward "sustainable development." A primary interest is how both public and private institutions will deal with resource limitations, climate change effects and management issues. His focus includes environmental risk management, design-for-the-environment and linking business and environmental decision-making.

Online Delivery

With the exception of a classroom seminar for personal introductions and to introduce the topic of sustainability, the course will be held online. A combination of the following online resources and activities will be used.

Learning Resources and Activities

The web-based resources and activities in this course will help you discuss and develop a meaningful understanding of sustainability. The course features a combination of practical assignments, discussion forums, content lessons, quizzes, and useful resources.

Figure 2: The activities in this course, which are outlined by week, may also be viewed by type.

The learning objectives, resources, activities and guidance for each week – all you need to complete the course - are available from the online outline. Unless otherwise noted, every resource and activity included in the outline is a required resource or activity for full course participation and credit.

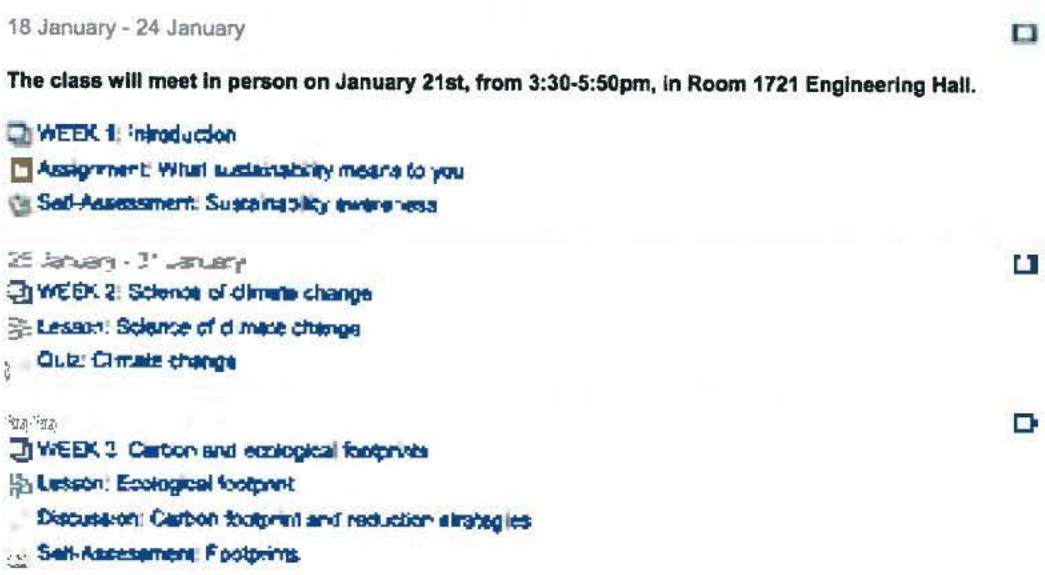


Figure 3: Begin each week with the instructions for the WEEK, followed by the activities.

Evaluation of Learning

You will be graded based on the following point system, a total of 100 points:

A = 93 and above
A/B = 89-92
B = 84-88
B/C = 79-83
C = 70-78
D = 60-70
F = 59 and below

Week	Activity	Points
1	Assignment: What sustainability means to you Self-Assessment: Sustainability awareness	5 2
2	Lesson: Science of climate change Quiz: Climate change	2 10
3	Lesson: Ecological footprint Discussion: Carbon footprint and reduction strategies Self-Assessment: Footprints	2 4 2
4	Discussion: Evaluate frameworks Self-Assessment: Frameworks and systems thinking	4 2
5	Assignment: Life cycle of soap Discussion: LCA and the "triple bottom line"	5 4
6	Discussion: Effect of consumption on sustainability	4
7	Case-Study Discussions: Natural resources and energy	4
8	Discussion: Sustainability and social justice	4
9	Assignment: LEED project review Discussion: (Continue discussions started in Weeks 6-8)	5 4
10	Assignment: Comparison of cleaning chemicals Discussion: (Continue discussions started in Weeks 6-8)	5 4
12	Case-Study Discussion: Innovation in wind energy	4
13	Discussion: Engineering for sustainability	4
14	Final Assignment: Sustainability in action Final Quiz: Sustainability awareness	10 10

- Assignments are worth 30% of the final grade.
- Quizzes, self-assessments and lessons are worth 30% of the final grade.
- Participation in discussion forums is worth 40% of the final grade and will be graded using the rubric and guidance for participation on the following page.

Loss of Points for Late Assignments

You are required to complete all of the activities outlined for each week on time. Weeks begin on Monday mornings. Each week's activities must be completed by 8am of the following Monday.

Unless prior arrangements are made with the instructor, or in cases of exceptional circumstances, these weekly due dates are firm. It is your responsibility to follow the outline, plan and work ahead as needed, and submit your work or participate on time every week. Late completion of weekly activities will result in the loss of 1 point per day for each overdue activity.

Participation in Discussion Forums

You are expected to add value to course discussions with thoughtful discussion messages and ongoing, meaningful participation in discussion forums that reflects you've "done your homework" and read what others have already written.

As part of this course you are part of a learning community that shares a responsibility to supplement the pre-recorded materials and scripted activities with lively discussion and analysis. In discussions, you will discover new ideas and study real-life scenarios to explore and better remember what it means to be sustainable.

Discussion forums enable you to share ideas, get feedback, and benefit from the knowledge and experiences of your classmates and instructors.

- Read what others have posted before making your contributions
- Keep your messages brief -- no more than 1-3 paragraphs
- Be professional, courteous and respectful of others' thoughts and time
- Don't be afraid to politely disagree with someone or state a different opinion -- that's what discussion is supposed to be about

You will be graded on the quality, not the quantity, of your contributions (see the rubric below), although for full credit you must post at least once per week each of the 10 weeks of the course that include learning forums.

Points	Criteria
4	• Exceptional quality (not quantity) • Evident that the learner has completed all readings/resources • Demonstrates applied level of understanding through personal reflections • Answer is well developed and logically reasoned • Provides original insights/responses, extending communication of others • Supports and leads others in discussion, respects others and their ideas
3	• Superior quality (not quantity) • Evident that the learner has completed all readings/resources • Demonstrates applied level of understanding through personal reflections • Answer is provided; logic may not be clear • Provides original insights or responses • Makes a connection to with others say, respects others and their ideas
2	• Satisfactory quality and quantity • Evident that the learner has completed all readings/resources • Primarily consists of summary or paraphrasing of readings • Answer is not fully developed; logic is not clear • Contribution is primarily a response to others, minimally original • Is respectful of others and their ideas
1	• Does not meet expectations • Not clear that the individual has completed readings/resources • Only consists of summary or paraphrasing of readings • Minimal effort put into answer • Is not respectful of others and their ideas

0	• Assignment not completed

Appendix 13: Co-curricular Professional Development Series

Four student services units within the College of Engineering (CoE) have joined forces to offer a new professional development series open to all CoE students.

The Student Leadership Center, Engineering Career Services, The Diversity Affairs Office and Engineering General Resources will be offering this series on the second Tuesday of every month throughout the 2009-10 academic year.

All workshops are free and open to all CoE students and will be held in the Tong Auditorium in the Engineering Centers Building, except for Dress for Success.

The Fall 2009 schedule is as follows:

Tuesday, Sept 8
Dress for Success
This entertaining event will help you make a great first impression at Engineering Career Connections (9/16 & 17) and at future job interviews. Attendees will learn about business casual and formal attire and receive tips on the latest in interview appropriate fashions. The session will be led by Melanie Downing, Director of Campus Relations at Kohl's Corporation, with the help of models from Polygon Engineering Student Council.

Tuesday, Oct 13
Social Networking
Do employers look at your Facebook account? Who uses LinkedIn? Kelly Cuene from the School of Business Career Center will discuss harnessing the power of social media and how students can benefit from Web 2.0. If you'd like to learn more about the latest in social networking technologies, how to protect yourself online and use these powerful tools to your advantage, then this is the workshop for you.

Tuesday, Nov 10
Personality Assessments
Do you know your True Colors? What is the MBTI? Come find out and learn more about your personality type. Knowing yourself and your personal traits can improve communication and how you work with and relate to others at home, school or work. So, can you really be as good as Gold? Would someone describe you as true Blue? You won't know unless you show!

Tuesday, Dec 8
Stress Reduction
Just in time for the end of the semester...Stress can affect your study habits, performance in the classroom and overall health. Come find out proper nutrition can help you manage stress and make it through finals! David Lacoque from UW Health Services will offer helpful stress management tips at the fourth installment of the Professional Development Series hosted by the Student Leadership Center, Diversity Affairs Office, Engineering Career Services and Engineering General Resources.

Appendix 14: Susan Piacenza's Professional Orientation Course

Professional Orientation
The Job Search & Work Transition

Susan Piacenza, Associate Director, ECS

Objectives/Goals

By the end of the next 8 weeks, after successfully completing the class projects, homework and additional assigned readings and projects, you should be able to:

1. Identify and articulate your skills and career goals
   - Develop confidence in presenting self to employers; Practice talking about strengths & qualifications; Learn importance of 1st impressions

2. Understand employer perspectives of the recruiting process
   - Discover what employers are looking for in today's graduates; Interact with employers; Develop structured method for identifying jobs/employers

3. Design a successful job search plan, including the development of an interview portfolio
   - Develop a job search plan and portfolio; Write an excellent resume; Critique resumes; Know what makes a resume effective; Write business emails requesting interviews and continuing to show interest after the interview

4. Prepare for and participate in an effective interview
   - Answer tough interview questions; Use examples from your experience to illustrate answers; Research companies; Be prepared before your first interview; Develop questions for the recruiter; Show true interest during the interview; Following-up with employers

5. Understand the importance of ethical professional behavior and appropriate business etiquette in all communication and dealings with co-workers and supervisors
   - Learn the importance of professional business ethics important in the work-place today; Understand proper etiquette in relationship building on-the-job, conducting effective meetings and corresponding with supervisors, co-workers and clients.

6. Use the many resources of Engineering Career Services in helping you develop an on-campus and off-campus job search strategy

Week by Week - Tentative

	Topic		Date
1	**Introduction / Self-Assessment, Goal Setting & Career Connection** Review Class Goals, Syllabus, Expectations & Grading; Meet your SA Self Assessment & Skills Employers Expect Resume Basics & Career Connection		1/21
	In-Class &/or Homework		
	Career Goals & Objective	25	
	Key Skills / Qualifications	25	
	ECS Account Activated	25	
	Resume (with edits) & Profile	25	100
2	**Communicating Your Qualifications – Building from the Resume to Interviewing** First impressions and roles: body language; confidence in self-assessment Preparation for Career Connection		25
	In-Class &/or Homework		
	Group Activity: Roles & Introductions/Employer Panel Questions		25
	Interview Q & A	25	
	Career Connection		25
3	**Employers Perspectives** Networking with the Employer Panel MBTI	25	2/4
	In-Class &/or Homework		
	Employer Comments & Quiz Project	25	
	Interview Q &A	50	100
4	**MBTI to Improve Communications & Understanding** Understanding TYPE in team dynamics and career satisfaction	50	2/11
	In-Class &/or Homework		
	Job Search Portfolio		25
5	**Interviewing**		25

Interview Preparation
Final Project Assignments

	In-Class &/or Homework			
	Small Group Interview Practice	Out of Class Group Meeting – 1 hour		50
	Business Etiquette & Relationship Building		25	
	Final Project Assignments		25	125
6	**Mock Interviews**			50
	In-Class &/or Homework			
	30-minute Interviews with Employers			
	Thank you Email		25	
	Interview Evaluation			25
7	**Life-Long Job Search Skills**		25	3/4
	In-Class &/or Homework			
	Off-Campus Job Search			
	Final Project Details			Out of Class Group
Meeting – 1 hour	50	75		
8	**Final Presentations**			100
	In-Class &/or Homework			
	Critique of Final Projects		25	125

Grading

- Attendance & Participation 400 pc
- In-Class Projects &/or Homework
- Final Presentation 100 points
- **No Final Exam; No Make-ups**

A	93 - 100
A/B	87 - 92
B	80-86
B/C	75 - 79
C	70 - 74
D	51 - 69
F	Below 60

Appendix 15: Entrepreneurship & Creativity Seminars

Innovation Days Seminar Series

General Seminar Scope and Schedule

Chad Sorenson / chad@sorenson.net

Fall 2009

Date	No.	Title	Description
1-Oct-09	1	The Innovation and Entrepreneurial Career	Chad Sorenson turned his Innovation Days project into the basis of a successful company and has never looked back. This session will touch on all the main points of turning an idea into reality, highlighted by the stories of Chad's first two companies: Fluent Systems and Sologear.
8-Oct-09	2	The Origins of Innovation: Find a Good Problem	Most successful inventions start with a recognized need or problem. This session will explore the ways to discover good problems to solve that have a high chance of leading to a successful innovation. This lecture will give you the tools to come up with great ideas for new projects, which is often the hardest part.
15-Oct-09	3	Unlocking the Creative Process	Many people do not consider themselves creative and use this as an excuse to not pursue innovation on their own. However, like most things, creativity is a skill that can be learned. This lecture will focus on the methods one can use to generate novel solutions and breakthrough innovations. The best way to come up with a great idea is to have a lot of ideas!
22-Oct-09	4	Assessing Your Ideas: Selecting the Project	How do we know if our ideas are feasible or not? If we have more than one idea, how do we choose which one to pursue? This lecture will step you through all of the critical success factors you should consider before investing a lot of time into a given project.

Innovation Days Seminar Series

General Seminar Scope and Schedule

Chad Sorenson / chad@sorenson.net

Fall 2009

29-Oct-09	5	The Product Development Process	You have your project in mind and now its time to develop it into a marketable product. This lecture will go into detail the process professionals use to develop any new product and the critical things you should be thinking about along the way.
5-Nov-09	6	Prototype: Validate Your Design	Prototypes are vital to the development process of anything new and they should be an integral part of your project's evolution. They also communicate and demonstrate your idea in a way nothing else can. This lecture will discuss prototyping types and methods you can and should incorporate into your project.
12-Nov-09	7	Market Research: Talk to Your Customer and End Users	Too many projects are developed in a vacuum of information about how real people will react and use your innovation. This lecture will outline both primary and secondary market research techniques, and show how important these activities are to ensure you have a winning execution. This information is also vital to generating credibility with initial customers, investors and others.
19-Nov-09	8	Business Analysis: Tying it All Together	Once you have a preliminary design, a proven prototype and some market research complete, its time to take a hard look at the economics of the invention. Will the product be successful commercially? This lecture will go through the process of analyzing the invention from a business perspective to see where its strong and weak points are. This is a vital step that eventually leads up to a full business plan.

Innovation Days Seminar Series

General Seminar Scope and Schedule

Chad Sorenson / chad@sorenson.net

Fall 2009

3-Dec-09	9	Intellectual Property: Patents, Trademarks and Trade Secrets	This session will go over the key ways you can protect your invention using patents, trademarks and trade secrets. We'll talk about the importance of design notebooks, implications of public disclosure, international patents and many other topics. This lecture will give you what you need to know to obtain your first patent.
10-Dec-09	10	Commercializing the Invention	There are many ways to derive a profit from all of your hard work and ingenuity. This lecture will discuss the options inventors have at their disposal for commercializing their inventions from licensing the concept on through starting a brand new company.
17-Dec-09	11	Attracting the Big Bucks: Financing Your Project	Regardless of how you chose to commercialize your invention, you will undoubtedly need money to develop the idea to a point where it will be salable. Finding investors, persuading them of its merit and attracting investment capital is a big project in itself. This lecture will outline how you fund the development of your invention.

Appendix 16: College of Engineering Student Engagement through Student Leadership Center

UW – Madison
College of Engineering
Student Leadership Center

Estimated Totals: Fall 2005 – Fall 2009

	Number of Organizations	Number of Participants
1999 - 2000	37	No info
2000 - 2001	No info	No info
2001 - 2002	58	No info
2002 - 2003	No info	No info
2003 - 2004	47	3180
2004 - 2005	56	3205
2005 - 2006	48	1920
2006 - 2007	44	1364
2007 - 2008	48	1964
2008 - 2009	56	2244
2009 - 2010	57	2570

These numbers are estimates based on student reported data at the beginning of each fall semester. Organizations may continue to increase membership throughout the year.

Appendix 17: UW-Madison Leadership Certificate Program

Capturing the University of Wisconsin's commitment to leadership,
Celebrating student impact on the campus and community,
Continuing purposeful learning both inside and outside of the classroom

Leadership Certificate Program
Center for Leadership and Involvement
University of Wisconsin-Madison

Introduction to the Leadership Certificate

The University of Wisconsin-Madison recognizes the need for increasing the capacity of individuals capable of taking leadership roles in all professions and sectors of society while on campus and beyond. It is our belief that leadership can be learned in formal classes, community-based leadership opportunities, mentoring and internship settings, as well as through a range of collaborative leadership activities.

The definition of leadership that guides the Leadership Certificate is that leadership is "the ability to mobilize self and others toward a common goal." This definition infers leadership is an action, not a position. The Leadership Certificate program strives to recognize leadership mobilization that creates an impact on individuals, student organizations, and the community in a positive, permanent way.

The leadership certificate is based on four assumptions:

- The University of Wisconsin-Madison is committed to developing the leadership capabilities within its community;
- Effective leadership skills can be taught and learned at the university and in the community;
- The university environment is a strategic and appropriate setting for mastering both leadership theory and leadership skills; and
- The success of leadership is measured by direct impact on individuals, organizations, and society.

Background

The University of Wisconsin-Madison campus is steeped in excellence and tradition. This excellence is demonstrated through the competitive admissions process that brings exceptionally bright and talented students to the campus, as well as through the notable contributions that faculty, staff, and alumni have made through research, teaching and outreach to local, national, and international communities. The passing of the campus culture from one generation to the next – the traditions – are taught from the moment a student steps on campus and begins to absorb the rich history the campus has to offer to the first time they sing "Varsity" as a graduate. Woven throughout the student experience and the environment are monuments to the tradition of student activism and leadership on campus. Anyone who has spent a Friday afternoon on the Memorial Union Terrace, or walked down the lakeshore path to Picnic Point has profited from the strong student leadership on the UW-Madison campus. These two campus icons represent student initiatives and action that left a permanent imprint on the campus environment. Less obvious are the individual notations of student achievement. The Leadership Certificate has been created to capture the personal commitment for leadership development demonstrated by many of the student leaders on campus.

This certificate is the product of the Student Leadership & Governance Work Group established by the Office of the Vice Chancellor for Student Affairs at UW-Madison during 2002-2003. The broad-based Work Group was comprised of representatives from student governance, campus student leadership, colleges, the Dean of Students Office, the Wisconsin Union, the Morgridge Center, Interfraternity

Council, University Housing, and the Vice Chancellor for Student Affairs Office. The Leadership Certificate is administered through the Center for Leadership and Involvement at UW-Madison.

As of Fall 2009, the Leadership Certificate must be completed online at: http://www.cfli.wisc.edu/leadership_certificate.htm.

Qualifications

To be considered for the Leadership Certificate, a student must:

- ✓ Be a currently-enrolled UW-Madison student in good standing
- ✓ Be actively involved in leadership roles in organizations, work experiences, and in service to the community while on campus
- ✓ Have a cumulative grade point average of 2.5 at time of application
- ✓ Be able to document 100 hours of education and experience focused on leadership development
- ✓ Complete three online modules focused on leadership development from the established list
- ✓ Complete and submit an educational artifact (paper, Web site, presentation) indicating the learning and growth gained through the educational and experiential activities.
- ✓ Submit within established deadlines:
  - o Leadership Certificate Application form,
  - o Educational Artifact, and
  - o The electronically signed ethics statements, stating that all information submitted is complete and accurate.
- ✓ Attend an optional orientation session offered by the Center for Leadership and Involvement to prepare for the submission of the Leadership Certificate Application process.

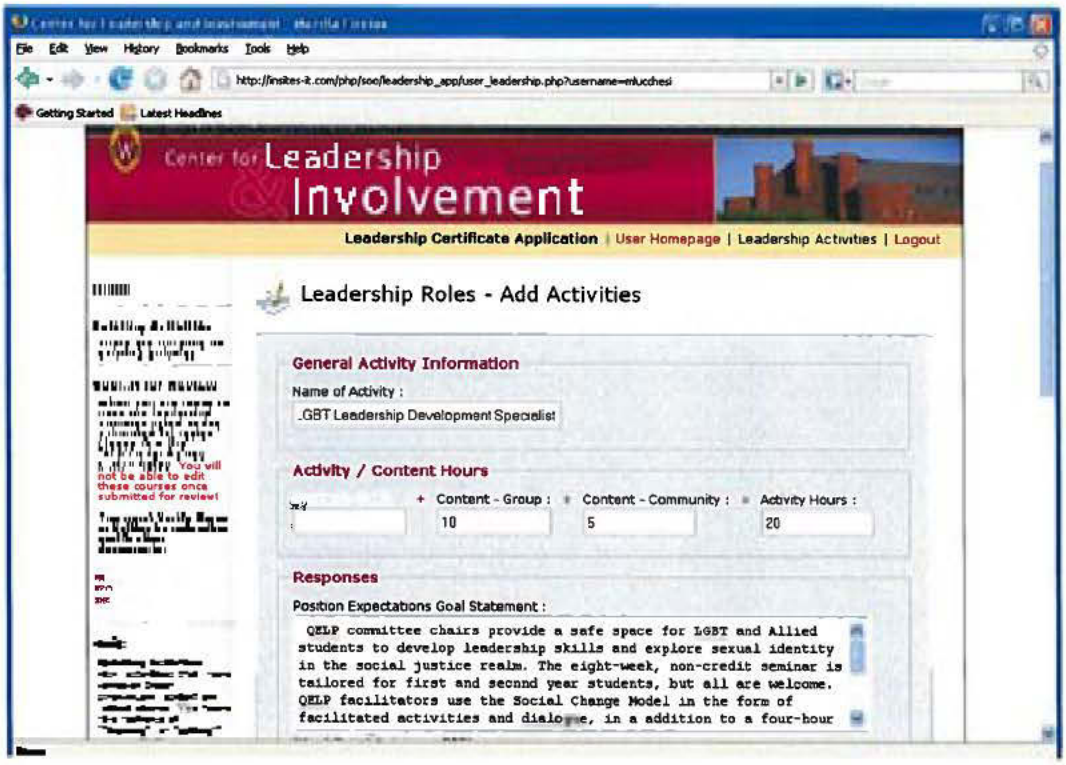
Certificate Requirements

To be eligible for the Leadership Certificate, a student must provide documentation of a minimum of 100 hours of experience in three Content Areas. A content area is defined as a component of leadership that impacts either the individual, a group, or community.

- Individual
- Group
- Community

To fulfill the three content areas, applicants must also engage in educational activities within and outside the classroom focused on leadership. These hours of education and experience are in five different Activity Areas. An activity area is defined by a type of involvement in leadership.

- Leadership Roles
- Academic Courses
- Civic Engagement
- Out-of-Class Learning
- Work Experience



In addition, each student must complete three online modules, a capstone educational artifact describing personal growth and development and her/his impact on others, and sign an electronic ethics statement. Each of these areas is described further.

Activity Areas

The five Activity Areas are:

- leadership roles
- academic courses
- civic engagement
- outside the classroom learning
- work experiences

Activity Area Examples from Past Recipients:

Leadership Roles:
Student Leadership Program Committee Chair, Army ROTC, Teach For America, Sorority Rush Recruitment Counselor, ASM Representative, Engineering Expo, Dance Elite Coach, Polygon Officer, WUD Chair

Civic Engagement:
Alternative Breaks, Service-learning courses, service-related student organizations, Youth Camp Counselor, Kerry/Edwards Campaign, Blood Drives, YWCA Volunteer, United Way, Toys for Tots, High School Classroom Volunteer

Workshops/Seminars:
Adventure Learning Program Workshop, Student Leadership Program All-Campus Leadership Conference, LGBT Leadership Institute, LeaderSHAPE, Emerging Leaders Program, WUD Retreat, UW Housing Leadership Conference, Women's Leadership Conference

Work Experience:
Student Leadership Program Coordinator, unpaid or paid internships, House Fellow, ASM, Intramural Student Supervisor, SOAR New Student Leader, Morgridge Center Staff Position, ALPs facilitator

Academic Courses:
Sociology 496 Leadership Seminar, Communication Arts 260 Communication and Behavior, MHR 420 Organizational Management, EPD 265 Teams & Engineering Professions

Activity Area	Hours	Description	Verification
Leadership Roles (LR)	20 hours max.	Applicants must accept a leadership role where major responsibilities are leadership related and allow for personal growth. Submissions must demonstrate that applicant employed the ability to lead others and had a positive impact. This may be a formal position or a different role where applicants are expected to set and accomplish goals, and empower/lead others, and have a significant impact and foster positive social change on group members, the organization, the campus, and community.	1. Position description/expectations 2. Letter of verification 3. Personal goal statement of what was hoped to be achieved 4. 500-word summary of what was learned and how role(s) relate(s) to 1 of 3 content areas
Academic Courses (AC)	30 hours max.	Applicants must take a for-credit course that has principal material based on either leadership. One academic credit equals 15 contact hours. Courses must be completed by date of submission, or letter from professor/TA must be included that	1. Transcript; must obtain a grade of 3.0 or better for the class to qualify or receive a pass/fail in a pass course 2. Syllabus

		documents applicant is receiving Pass or receiving 3.0 or better.	3. 500-word summary of what was learned and how it relates to the specific content area. 4. Included material that can be applied to life in regards to leadership
Civic Engagement (CE)	20 hours max.	Submissions must demonstrate community leadership in service and active involvement in the community. Service needs to benefit an entity or group outside of personal student organization or the self. Submissions must demonstrate an understanding of community assets, how community leadership can have an impact, and reflection on service from a global perspective, not just an individual perspective. Examples of service include GUTS, volunteering at the UW Hospital, or working on a political campaign. **Examples that are not acceptable are volunteering for your student organization, i.e., tabling at an event. Philanthropy donations also do not constitute civic engagement opportunities. If applicant has led a philanthropy event applicant may consider it a leadership role in activity area.	1. Volunteer position description & non-profit agency description including mission. 2. Dates of Service and number of hours listed 3. 500-word summary of what was learned and how it relates to at least one of three content areas, i.e., how it affects or impacts a broader community. Introduction to summary must include a description of experience. 4. At least 50% of total hours submitted are completed through same service agency and 50% of time must be off-campus. 5. See FAQ on civic engagement for guiding questions on how to write summary. 6. Contact information of volunteer supervisor/written verification (including Certificate, letter, or card of participation from community service agency).

Out-of-Class Learning (WSC) including workshops, seminars, & conferences	30 hours max.	Non-credit leadership learning opportunities such as workshops, seminars, conferences, or equivalent. Contact hours may only be provided for actual workshop time.	1. Certificate, letter, or card of participation 2. 500-word summary of what was learned (1 summary for each activity) and how activity relates to one of three content areas 3. Itinerary of each activity (seminar, workshop, conference etc).
Work Experiences (WE)	20 hours max.	Paid, unpaid, or for-credit experience that fosters personal growth and skill base opportunities which include a developmental focus. Examples may include House fellows, ALPs facilitators, ASM, and SLP coordinators.	1. Job description/expectations 2. Letter from supervisor 3. 500-word summary on what was learned and how it relates to one of three content areas.

Content Areas

The five activity areas must be placed into three content areas:

- Individual
- Group
- Community

These content areas are not in addition to the 100 hours, but each activity submitted must also satisfy the Content Area requirements. This was established to encourage broad, personal leadership development across a number of contexts. As with the Activity Areas, there are hour minimums for each of the three Content Areas. Content Areas are based of the Social Change Model (Higher Education Research Institute, UCLA).

Content Area	Hours	Description
Individual (I)	30 hours min.	Includes a consciousness of self, congruence within self, and a sense of commitment. Knowing yourself is a fundamental value of leadership development. The certificate seeks to recognize individuals who are aware of their beliefs, values, attitudes and emotions that motivate one to take action; one who can become a committed participant in the shaping of the group's common purpose; and one who thinks, feels, and behaves with consistency, genuineness, and authenticity.

Group (G)	45 hours min.	Includes collaboration, dealing with controversy in a civil and respectful manner, seeking a common purpose. In this area, the certificate seeks to recognize individuals who are able to work with others in a common effort. Collaboration constitutes a cornerstone value of the group leadership effort because it empowers self and others through trust; and recognizes that differences in viewpoint are inevitable, and that such differences must be communicated but with civility – respecting others and with a willingness to hear each other's views and exercise restraint in criticizing others.
Community (C)	25 hours min.	Focused on citizenship. In this content area, the individual and collaborative group becomes responsibly connected to the community and the society through the leadership development activity. The impact is a positive change on behalf of others in the community. Reflection must reflect looking at an issue at the global level rather than at the individual level.

Online Modules

Three online learning activities have been identified as required for completion of the certificate. The intention is that as availability of online learning activities increases this list will be expanded and each student chooses from the list. Currently, the list includes the following sites. Do not submit more than three online learning modules.

Module Options	Description	Verification
See below for detailed description: • Emotional Intelligence Services • The Art and Science of Leaderhsip • Leader Values • Program Planning Resource Guide • Race the Power of Illusion • Conflict Resolution • How to Lead Effective Meetings	Submissions for online modules must consider how what was learned resonates with own leadership experience. Submissions must reflect on how applicant will apply what was learned to personal leadership style and how s/he will apply what was learned to future leadership experience.	1. Completed 3 different online modules 2. Submitted three responses (one per module)

1) The Art & Science of Leadership
http://www.nwlink.com/~donclark/leader/leader.html

Student Learning Activity – Complete five of the seventeen chapters on this Web site. Also complete one-page response paper.

Description – This award winning web site is loaded with information about leadership, human resource development, training, and development. The Big Dog's Leadership Page, is an online

study guide that reviews major leadership theories and behaviors in 17 lessons. Examples include; Leadership Styles, Leadership & Character, Leadership & Diversity, and Performance.

3) Leader Values
http://www.leader-values.com/AssessmentUser/default.asp

Student Learning Activity – Complete the "Self Assessment" and reviewed the follow-up materials. Also complete one-page response paper.

Description – A number of sources were used in the development of this site which discusses a training model called the "4E's" as a practical approach to leadership. The model was developed through available literature, studying historic leaders, and from personal experiences from the author. The 4E's are Envision, Enable, Empower, and Energize, and the site discusses what is termed "The Essential Truths About Leadership;" Leaders create and need followers, Leaders create and need change, Leaders and followers have congruent value systems, and Leadership is a process not an event.

4) Program Planning Resource Guide
http://cfli.wisc.edu/pprg_home.htm

Student Learning Activity-Read five chapters of the Resource Guide and complete a one-page response paper outlining how you could apply what you learned.

Description-Developed by the Center for Leadership and Involvement to assist student groups with their program planning, this resource guide walks through and gives examples of the most important steps involved in planning effective programs on campus. Topics include; assessment, program plan topics, marketing and publicity, final details, and a link to special event University policies if applicable for groups.

5) Race the Power of an Illusion
http://www.pbs.org/race/000_General/000_00-Home.htm

Student Learning Activity- Choose four of the six activities from this site in order to explore the power of race. [From the home page click on Learn More to view all six chapters/activities] Complete a one-page response paper outlining what you learned and how you can apply it to your life.

Description-Race is one topic where we all think we're experts. Yet ask 10 people to define race or name "the races," and you're likely to get 10 different answers. Few issues are characterized by more contradictory assumptions and myths, each voiced with absolute certainty. What is this concept called "race?" - a question so basic it is rarely raised. What we discovered is that most of our common assumptions about race - for instance, that the world's people can be divided biologically along racial lines - are wrong. Yet the consequences of racism are very real. How do we make sense of these two seeming contradictions? Our hope is that this series can help us all navigate through our myths and misconceptions, and challenge some of the assumptions we take for granted. Produced by California Newsreel, in association with the Independent Television Service (ITVS). Distributed through Public Broadcasting Service.

6) Conflict Resolution

http://www.ohrd.wisc.edu/onlinetraining/resolution/index.asp

Student Learning-Read the first three chapters (What is Conflict, Common Problems, and 8 Steps to Resolving Conflict of this site and complete a one-page response paper outlining how you can apply what you learned.

Description-Conflict is a complex issue, one that naturally permeates all organizational and community life. In order to address conflict effectively, we need: An attitude of respect towards those with whom we disagree; A willingness to entertain new definitions of the issues at hand; Sensitivity to cultural, gender, and personality differences that may influence perceptions of the needs of the parties; and Attention to the development of communication and problem-solving skills. Developed by the Office of Human Resource Development, Training Officer, Harry Webne-Behrman, this site recognizes that conflicts cannot be addressed by simple advice, but the hope is that this site can serve as a resource that enhances your understanding of the challenges you face and connects you to other learning opportunities.

7) How to Lead Effective Meetings

http://www.ohrd.wisc.edu/AcademicLeadershipSupport/LeadMeetings/tabid/74/Default.aspx

Student Learning-Read the first three chapters (Responsibilities of the Chair, Common Meeting Problems, and Best Practices and complete a one-page response paper outlining how you can apply what you learned.

Description-Developed by the Office of Human Resource Development, this resource can assist anyone who is put in a position of having to run a meeting. The resource can also assist those who are experiencing particular challenges within their meetings such as timing, dominant and/or silent participants, and lack of follow through. It is an excellent resource for all student leaders.

Educational Artifact

The Educational Artifact can be a short paper, short presentation (scheduled through the Center for Leadership and Involvement 608-263-0365 or leadership@odos.wisc.edu), or Web site and is intended to demonstrate the growth and learning in the different content areas, as well as the impact of your contribution on individuals, groups, and the community. It is also intended to serve as a capstone synthesis for the Leadership Certificate. The Artifact is a concise description of events and activities that have contributed to the characteristics that comprise who you are and what you have learned about yourself through the activities listed in the Record of Activity, and your impact on others. Discuss strengths and areas for improvement, as well as needs that you anticipate as you progress through your career at and beyond UW-Madison.

The artifact is evaluated by a panel of students and staff using the following criteria:

Educational Artifact	Criteria
Artifact can be submitted in website, paper, presentation, or other pre-approved format. Contact leadership@odos.wisc.edu for	1. meets proper formatting: i.e. 2500-word submission or 15 minute presentation 2. Effective demonstration of significant

approval.	personal or professional events 3. Demonstrated identification and analysis of learning derived from these events including impact on others 4. developed personal action plan identifying critical next steps for furthering personal development 5. organized, including logical development of material, clarity of communication, grammer, spelling, etc.

The artifact is evaluated as either "acceptable" or "not acceptable." Applicants with artifacts that are evaluated by the panel as "not acceptable" will be provided specific feedback to improve the artifact to a level sufficient to "acceptable." The decision of the panel is final. Applicants who do not receive the Certificate may re-apply as soon as the next semester.

In terms of format, written work should be five pages in length; presentations should be not longer than 15 minutes in length. Artifacts delivered via the Web are not constrained by limits but should reflect the significance and quality of the learning as well as the impact on others achieved through participation in the activities submitted.

The artifact is not simply a reiteration of what you have already developed for your packet. Rather, the artifact is to pull everything you have learned together – where you have been, what you have learned, and how you'll incorporate your experience into future leadership.

Here are some reflection questions to help guide you as you work on your Educational Artifact:

• What lesson(s) did you learn from your experience that may have surprised you? Or challenged your then-current perceptions?
• How have the Leadership Certificate activities helped you grow as a leader and member of your organization and/or community?
• Think about the activities/roles you have participated in. How have they been similar? How have they differed?
• If you could take away but 1 lesson from this experience and share it with others, what would that be?
• How has this experience changed/developed you? How will this affect your future leadership work?
• What is the biggest challenge for you when engaging in leadership activities? How will you continue to address it?

Ethics Statement

Each student must sign the following electronic ethics statement after submission of each activity.

> *I certify that the information in this application is true and complete to the best of my knowledge and I understand that inaccurate information may affect my status relative to the Leadership Certificate. I also understand that if, after receiving the Leadership Certificate, it comes to the attention of the granting parties that information I am presenting here is untrue or inaccurate, the Leadership Certificate will be withdrawn and all benefits forfeited. I also acknowledge that this application and supporting documents become the property of the University of Wisconsin system.*

Applying for the Certificate

Any student meeting the qualifications is encouraged to apply for the Leadership Certificate. To apply for the Certificate, applicants can acquire a "Leadership Certificate Application" log-in from the Center for Leadership and Involvement website. It is important to note that each student is responsible for tracking her/his own involvement and retaining all records necessary for the form. An application is not considered complete until all the verification is submitted for each activity area.

Forms are available at the Center for Leadership and Involvement website to assist with tracking and verifying their involvement.

Application Process

A. Student decides to apply for the Leadership Certificate and registers on line at: http://www.cfli.wisc.edu/leadership_certificate.htm.
B. Attends the Leadership Certificate Orientation Session provided by the Center for Leadership and Involvement, offered one time each semester
C. By the established deadline date, applicant submits the necessary forms and supplemental records through the online application.
D. Leadership Application Materials are reviewed by the Leadership Review Committee consisting of students, faculty, and staff from UW-Madison.
E. Educational Artifact is evaluated by members of the Leadership Certificate Review Committee consisting of members from Leadership Certificate Review Committee; any student who wishes to utilize the presentation format for the educational artifact must also schedule an appointment with the panel through the Center for Leadership and Involvement
F. Student is notified of decision by the Center for Leadership and Involvement

Calendar of Events

The fall calendar is as follows.

Leadership Certificate Orientation Session	September 22nd 5:00-6:30P
Application Workshop	October 20th 5:00-6:30P
Leadership Certificate Applications Due	November 1st
Students notified	Last day of classes

Orientation Workshop and Application Workshop will be held in The Masley Media Room, first floor, Red Gym.

The spring calendar is very similar.

Leadership Certificate Orientation Session	TBA
Optional Monthly Leadership Reflection Sessions	TBA
Leadership Certificate Applications Due	April 1
Students notified	Last day of classes

Applications will not be accepted during the summer months but assistance is available from the Center for Leadership and Involvement.

Questions? Contact:

Marissa Lucchesi
Leadership Specialist,
Center for Leadership and Involvement
239 Red Gym
E-mail: Leadership@odos.wisc.edu
Phone: (608) 263-0365
Fax: (608) 265-8184

Office Hours:
Monday: 10:00AM-12:00PM
& by appointment

Frequently Asked Questions (FAQs)

Does the LC appear on my academic transcript?

No. but you can include it on the Leadership and Involvement Record.

> The Leadership and Involvement Record is an official document from the University of Wisconsin recording the leadership roles, student org involvement, or group membership students have had on campus. The record is not limited to student organizations but can include community service activities, intramural sports, research activities, and more. Offered through My UW's Student Center, this document can be used to verify out-of-classroom activities to employers, assist with completing graduate school applications, provided to individuals writing letters of reference, and assist with the development of resumes.

I see that there are 5 activity areas. Do I have to do everything?

No, you don't have to do everything but there are two exceptions. The academic course is required (a maximum of 30 hours, where 1 credit = 15 hours), and out-of-class learning (a maximum of 30 hours).

Do I have to formally declare that I am applying for the certificate?
No, we recommend you begin working on the certificate a semester before you plan on submitting it, but you can submit when you're ready. In order to begin your online submissions, however, you must register online at: http://insites-it.com/php/soo/leadership_app/ and create a profile.

How much time should I be spending on my application?
That varies. As long as you're a UW-Madison student, you can work on applying for the certificate. We recommend beginning the certificate at least one semester prior to when you plan on completely submitting.

Is the orientation mandatory?
No, but if you're interested it's Tuesday, September 22nd, in the Masley Media Room in the Red Gym (first floor) from 5:00-6:30.

Is the educational artifact submitted or presented?

The paper and website are submitted without presentation. If you would like to present your artifact, however, you must present it to the reviewing committee. If you are doing an artifact please indicate online and you will be contacted by the Center for Leadership and Involvement.

Can I e-mail you to see if my academic class will be accepted?
Our review is based off the syllabus. If you have a question on whether or not we can accept your choice of class, send your request and syllabus of the course to leadership@odos.wisc.edu and mlucchesi@odos.wisc.edu.

When are the deadlines to submit my completed application
In the Fall the deadline is November 1. In the Spring the deadline is April 1. Applications are not considered complete until all verification is submitted for each activity area.

What are you looking for in verification?

Leadership Roles:

1. Position description/expectations
2. Letter of verification
3. Personal goal statement of what was hoped to be achieved
4. 500 words summary of what was learned and how role(s) relate(s) to 1 of 3 content areas
5. Maximum of 20 hours
6. Major responsibilities are leadership related-allow for personal growth
7. Employed ability to lead others
8. Positively impacted others

Academic Courses:

1. Transcript
2. Syllabus
3. Obtain grade of 3.0 or better for the class to qualify
4. 500 word summary of what was learned and how it relates to 1 of 3 content areas.
5. Max of 30 hours
6. Principle material relates to leadership or global competence and at least 1 of 3 content areas
7. Included material that can be applied to life in regards to leadership or global competence
8. You must pass in a pass/fail course.

Civic Engagement:

1. Volunteer position description
2. Non-profit agency description
3. Written verification of participation from community service agency
4. 500 word summary of what was learned and how it relates to at least 1 of 3 content areas- how it affects or impacts a broader community.
5. Maximum of 20 hours
6. At least 50% of total hours submitted is completed through same service agency.
7. Certificate, letter, or card of participation from community service agency.
8. Must benefit community, not a specific organization or individual

Out of Class Learning:

1. Certificate, letter, or card of participation
2. includes workshops, seminars, conferences, or equivalent
3. 500 word summary of what was learned (1 summary for each activity) and how activity relates to 1 of 3 content areas
4. itinerary of each activity (seminar, workshop, conference, etc.)
5. maximum of 30 hours
6. did not receive credit
7. involves leadership learning

Work Experience:

4. Job description/expectations
5. Letter from supervisor
6. 500 word summary of what was learned and how it relates to 1 of 3 content areas
7. maximum of 20 hours
8. documentation on paid, unpaid, or for-credit experience
9. position fostered personal growth
10. position was skill based

What should I reflect on to help me write my summaries?

The committee is more interested in seeing a reflection of your experience rather than a summary of what you did. Below are some questions that might help you reflect:

- What talents can you bring to a group and what areas can you work on?
- Explain the impact of your leadership experience and how it is a positive change on behalf of others in the community.
- How do/might you use your distinct leadership talents to further develop the leadership skills of others?
- What specific individual leadership skill, value, or characteristic was developed through your experience?
- Thinking about your experience, how might the group have accomplished its task more effectively? In what ways did others help you and how did you help them?
- How did this experience challenge your leadership style and skills?
- What can you do as a leader to create a successful, productive team where team members feel empowered and included?

What is an Educational Artifact?

The Education Artifact is your personal action plan for how you plan to continue your leadership development in the future. This is not a reiteration of what you have shared in your reflections, but a capstone of how you grown as a person from your leadership experiences. Past examples include: 5-page paper, 15-minute presentation, interactive website.

How do I write my summary for my civic engagement activity?

Just like every summary that needs to be submitted, civic engagement summaries must not recall what an applicant did, but rather what the applicant learned as a result of his or her experience. The committee recommends that a one paragraph intro describes the experience of the applicant and the rest focus upon learning. Below are some questions to help with the reflection portion of the summary:

- How can you use your experience to be a more effective leader in the community?
- Explain why you need to be aware of community needs in order to be an effective leader.
- Explain how you became responsibly connected to the community through this experience.
- Through your experience, what other community assets could you involve to help you achieve your vision and objectives and how could your leadership style help with this?
- How, specifically, has the community benefitted from your leadership experience?
- What seem to be the root causes of the issue/problem that you assisted with? What role could you play in addressing this issue? How would you engage the community to be involved in this situation?
- Discuss a community problem that you have in contact with during your leadership experience. What do you think are the root causes of your problem? Explain how your leadership skills and your experience relate to this.

What if I can't fulfill the maximum hours in each activity area?

The Leadership Certificate requirements are set up so that you have a chance to complete a maximum of 120 hours of service and activities, but you are only required to complete 100. This should help give some leeway in the activity areas where you might be lacking hours. You are not required to record a leadership experience in EVERY activity area except academic and out-of-classroom learning.

Can one position or activity be used for more than one activity area?

No. Although one activity may fulfill multiple Activity Areas, the purpose of this Certificate is also to be sure you are educated in multiple aspects of leadership.

Can a service-learning course count for both the Academic Courses and Civic Engagement activity areas?

No. Although a service-learning course could fulfill both academic courses and civic engagement, you must choose one activity area in which to use it.

Can philanthropy be considered civic engagement?

No, although philanthropy is a very worthy cause, the purpose of civic engagement is to emphasize engagement with community members that showcases your leadership skills.

What do I need to verify my academic course?

The course that you choose for this activity area must already be completed. We cannot accept courses that you are currently taking because there will be no final grade available by the time we award recipients. Please be sure to include the course syllabus, official/unofficial transcript (to show a 3.0 grade), and a 500 word summary of what you learned and how it relates to the activity area.

Final Comments

The Leadership Certificate provides a student leader who has excelled in her/his role and in the development of new skills and knowledge with a formal acknowledgement of these contributions and achievements. It is not expected that every student engaged in leadership at UW-Madison will qualify for the Certificate. The Leadership Certificate Program will continue to evaluate all aspects of the certificate to continue to ensure high quality participation from those leaders who do and will make a difference in the life of individuals, groups, and the community.

Appendix 18: Engineers Without Borders / UW – Madison updates

Partnered with the **Red Cliff Band of Lake Superior Chippewa**. Several current, long-term projects aim to provide groundwater drainage and storm water management infrastructure. With its unique geographical location, the Red Cliff community continues to suffer from annual flooding due to strong storms and snowmelt. The current projects aim to address the flooding issues through sustainable engineering interventions.

Working on a wastewater problem in **El Salvador** since 2005. The project began when members of the West Bend Rotary Club brought the project idea to EWB-UW in fall 2005. The primary objective of the project is to install a wastewater collection system in the communities of La Granja and Nuevo Ferrocarril.

The **Haiti** project is a collaboration with EWB-SF (the San Francisco Professionals Chapter of EWB), SMPC (a church in North Carolina), and OFCB (an NGO in Haiti) and takes place in Bayonnais, a valley in Northern Haiti. Though somewhat new to UW, the Bayonnais project has been underway since 2002. In that time, EWB has constructed a three-span vehicular bridge over a large river, and installed a photovoltaic solar power system to provide electricity to a church and school in Bayonnais. EWB-SF is currently working on the design and construction of a medical clinic, to be constructed in Bayonnais. The focus of the UW group is to design and construct a hydro-electric power generation facility to provide electricity for the clinic and possibly the surrounding households.

A project to try and help the community of Orongo **Kenya**. In 2003, a student from Sweden wrote his masters' thesis on this village's water quality and also outlined a few of their other urgent needs. The Kenya Project was organized and grew thanks to this report and a few main contacts from within the village. Immediately, dozens of student members began research on possible projects that could help the community in the areas of agriculture/irrigation, agroforestry, and water purification.

Working across many diverse majors to help communities around the Parish of Muramba, **Rwanda** since 2004. Our goal is to complete engineering projects to improve their lives, while at the same time providing experience for students by working on international projects. As students we help communities around Muramba by designing and organizing different engineering systems, working with local members to create sustainable projects, and completed in line with local customs and resources. In the past our group has helped communities around Muramba by installing and improving the main water pipeline into the community, introducing more sustainable cooking methods including the use of solar ovens and fuel briquetting, and installing a rainwater catchment system near the center of town.

More information...
http://www.ewbuw.org/
http://www.scribd.com/ewbuw-madison

Appendix 19: Habitat for Humanity / UW – Madison 2009 Updates

Over the past 9 years UW Habitat has partnered with our local affiliate to sponsor one simple, decent, affordable home in the Madison area each year. This sponsorship has been in collaboration with other sponsors and includes the chapter supplying a large portion of the funding and volunteers in addition to our advocacy and education activities. Over the near future hope to transition to a full sponsorship partnership for many reasons:

- First, our motivated and engaged students have the ability and drive to do so.
- Second, by our chapter sponsoring a home fully each year our previous partners will then be able to partner with other organizations and effectively increase the number of homes our affiliate is building in Madison each year. Currently Habitat for Humanity of Dane County builds 16-18 homes each year and hopes to increase that to 25 each year in the near future. **We are the only [Chapter] in Wisconsin that fully sponsors a house each year. Nationwide there are over 300 university campus chapters and less than 10% are able to build annually.**
- Finally, and most importantly in my mind, is that by being a full sponsor we allow our students to have a larger stake in the project and to be more involved in leadership and development opportunities. We are already seeing some of these benefits in our current build by being able to more effectively utilize student's ability and ingenuity though the design, construction, and certification of a LEED Certified home, as well as our developing a deeper relationship with our partner family, and the leadership of more efficient and effective fundraising.

  In essence, we want to transition from an organization that does very well offering students volunteer and involvement opportunities to one that also allows many students the ability to develop a personal, intellectual, and educational stake in making their community a better place.

UW-Madison Habitat student chapter is building a home for the Allah Family

Biography of Allah Family:

The Allah family consists of me, Born Logic Allah, and my four-year-old son Raysun Allah. We moved here to Madison in 2007 from Green Bay after I accepted a job offer from a company in the architectural field based here. We enjoy the city's culture and feel that it's a good fit for our family.

I enjoy listening to music, reading about history and playing sports - mostly basketball. Raysun is a very active and loving child. He loves playing sports especially basketball and baseball, watching movies and riding his bike. During the school year Raysun attends the Head Start program at the Red Arrow Trail center and year round he goes to the Sandbox Childcare Center.

We are excited about the opportunity to have a home we can call our own and appreciate the opportunity that the Habitat for Humanity Community is providing for us. I also want to take the chance to thank the volunteers who devote their time and efforts to build the homes for so many families. I look forward to being able to raise my son in a place that we own. Because we have moved so many times in the last few years, I look forward to living in the same place for many years to come. I wish everyone who has assisted us in any way love, peace and happiness.

Other Habitat Achievements

1. UW Habitat for Humanity receives State Farm Matching Grant for the second year in a row; UW Habitat has received a matching grant designed to increase fundraising capacity for the second year in a row form State Farm Insurance. The grant is for $2000 and was selected on the basis: Ability to fundraise, Involvement in advocacy, Participation in education,Relationship with covenant affiliate, and the Desire and opportunity for growth. State Farm insurance is the official corporate sponsor of Habitat for Humanity's Youth Programs Department and offered 21 matching grants this year to the over 300 total chapters nationwide.

2. UW Habitat for Humanity raises over $12000 during it's annual Rake-a-Thon. During the weekend of November 7th over 150 student volunteers raked over 53 homes in the Madison area to support building simple, decent, affordable housing in Dane County. Bridget Roby lead this fundraiser for the second year in a row, over doubling the amount raised in 2008 and coordinating with an unprecedented number of other student organizations.

3. UW Habitat for Humanity has furthered its partnership with Habitat for Humanity of Dane County. In May Habitat for Humanity of Dane County amended its Bylaws to permanently allow for an annual appointment of a full voting board member from the UW Campus Chapter corresponding to their fiscal year. Justin Gerstner, President of UW Habitat, has been selected for the seat and has been participating in the leadership of the local affiliate since September. Also, Justin has been elected to Habitat for Humanity's Executive board 2010 as Secretary. The UW Chapter is excited to be more deeply involved in making the greater Madison Community a better place.

Subject: Re: Mentors needed for a bridge project in El Salvador
Date: Wed, 16 Dec 2009 10:18:55 -0600
From: Norman Doll <normdoll@gmail.com>

To: Nancy Zolidis <zolna@charter.net>, "Zalewski, Tom" <TOM.ZALEWSKI@aecom.com >
Cc: "Price, Eric" <Eric.Price@aecom.com>, STEPHANIE RAE BIANCO <sbianco@wisc.edu>, Giri Venkataramanan <giri@engr.wisc.edu>

Hello Eric, Tom and Nancy,
Probably the best way to reach me is by e-mail but my cell is 414 405-8292. We had a brief phone call with 3 members of the church in Wauwatosa that is sponsoring this project just to get started. They used their 3 way calling feature to set it up so it didn't work well at all.

One of the members is traveling to the community this November and will gather more information including local contacts so we can get started. Stephanie Bianco, copied on this e-mail has agreed to be the initial project manager but is also studying abroad next fall so she will be looking for a backup right from the start.

There are two initial projects in this community. The first and the the one we agreed to take on is designing and installing, with local volunteers a railing on a railroad trestle bridge that they use for crossing a ravine. It is approximately 30 meters above the ravine and they report that children have fallen off the bridge and died. Pictures of this bridge are attached.

The second project is an uncompleted bridge. I will send pictures of that in a separate e-mail later. Assessment of that potential project could take place during one of the trips for the first project. I have also forwarded a separate e-mail with community information.

These projects would be handled as non-EWB projects since we are at our limit with the student chapter. Another option might be to handle the project as a professional chapter project. We have done a couple of projects with students directly, initial thoughts were to pursue a 'Badgers Without Borders' or UniversityWB or something like that. We had strong support with this from the university at one point.

The next steps currently being pursued are a trip by the sponsoring church members to gather information and Stephanie is gathering interested students. After Stephanie gets a potential group she is planning a meeting which we could all attend to go forward, many options are available.

Thank you all for your support and interest. Let me know what immediate questions you have.
Norm Doll

Subject: Fwd: Support for Dominican Republic Project
Date: Wed, 16 Dec 2009 12:13:12 -0600
From: Norman Doll <normdoll@gmail.com>

Here's another one Jeff. I get a good number of these that are looking for engineering and not just funding. This one is probably funded already the way it sounds, or at minimum we could have the requesting group fund it. When these groups request engineering help it has been my experience is they will secure the funding.

Norm

---------- Forwarded message ----------
From: < info@pioneercontroller.com>
Date: Wed, Dec 16, 2009 at 11:42 AM
Subject: Support for Dominican Republic Project
To: normdoll@gmail.com, craig@teamrowley.com

Norm, Norm thanks for getting in touch so quickly. Ned Paschke is actually my brother in law and a good resource for contacts. I have been working with Craig Rowley, a missionary in the small city of Constanza, in the Dominican Republic. Craig is in charge of developing infrastructure for a series of orphanages throughout the DR. The orphanages consist of multiple homes and related support buildings such as schools. Craig is employed by the Kids Alive program based in the US. Currently I am working with Craig on a DC direct well pumping application. AC power in the DR is extremely low quality and sporadic. Craig is also looking at building a new water tower for the Constanza facility of about 35 foot height and that is what I am contacting you about. Requirements are to hold about 2000 gallons of water. The logistics issue for Craig is getting reliable cement. Their mountain location makes getting ready-mix an impossibility so any cement mixing is in small batches which make it difficult to approach structural grade perfection. There is an existing cement water tower built by a previous support team that Craig has deemed "scary" and will need to come down. Craig does have a supply of I-beams and is probably looking at a welded structure. Realistically we would probably have to obtain engine driven welding equipment in the 200 amp range to build an appropriate structure. Do you have contacts that could help with the structural design of a small water tower? I have copied Craig on this e-mail so you can feel free to contact him directly with your questions. I would appreciate staying in the loop on this as I have a long term interest in Craig's success.

Craigs e-mail: craig@teamrowley.com

web site: http://teamrowley.blogspot.com/

Respectfully, Bruce Case, PEPresidentPioneer Automation, Inc.3600 Richie RoadVerona, WI. 53593Cell: 608-215-3776

Appendix 21: Servant-leader: Tim Miller, recent graduate

Tim Miller

Hope for Rwanda

Profile

Timothy Miller '06

UW major: Civil engineering

Career: Teacher

Tim Miller has spent the past year teaching math and science to girls in Rwanda. He first visited the war-torn country in 2004, and was deeply touched by its poverty and destitution. He returned a few months after earning his UW degree, determined to improve people's lives through education.

He lived in rural Murumba, a village destroyed during the genocide in 1994 that still lacks most modern amenities such as electricity, clean water, reliable transportation and communication networks. Because many Rwandan men were killed in the genocide, Miller saw the country's hope for the future in the education of young women.

Living in a convent with five Catholic nuns, Miller taught courses in physics and scientific drawing at the College of Immaculate Conception to more than 400 students, all girls. "My students inspired me to be a better person, to live with an attitude of stewardship, to lead with integrity, to forgive, and to remain hopeful that the world can be a better place," he says. "I believe that these students will someday be the doctors, engineers and leaders of Rwanda. Their enthusiasm is infectious, their hope courageous."

Miller also managed several small-scale engineering projects to improve the local water and energy infrastructure. "It turns out my degree in civil engineering paid off after all," he says. Miller has returned to Madison to begin graduate studies in September 2008.

His first visit to Rwanda was with the UW chapter of Engineers Without Borders, made possible through a Wisconsin Idea Fellowship from the Morgridge Center for Public Service. Through the organization, Miller developed leadership skills, serving as chapter president and the Rwanda project manager. He says the experience had a profound and lasting impact: teaching him how to apply classroom theories to solve real-world problems and an ethic of responsibility to his work, with a deeper appreciation of cultures other than his own.

Tim's Essay

I would not be where I am today, in the rural Rwandan community of Muramba, without the opportunities afforded me at UW-Madison. Allow me first to describe the setting where I now find myself and then explain how my career at UW-Madison helped get me here.

Located in Rwanda's northwestern province, Muramba is a desperately poor village without most modern amenities. Without question, it is a developing community in a developing

Links

- The ENSURE project (PDF)

Timothy Miller '06

UW 10th Question

- 1. What is your favorite flavor of Babcock ice cream?
  Chocolate chip cookie dough
- 2. What do you most miss about campus?
  Lazy afternoons at the Memorial Union terrace
- 3. What is your favorite mode of transportation? In Wisconsin, walking (it's free!) and public transportation. In Africa, a motorcycle. In Europe, a train
- 4. What items would you take to a desert island?
  water purifier, pen and paper
- 5. What was your first job?
  kitchen slave and bus boy at a local restaurant
- 6. Who is your hero?
  Shelva Mathews, a true saint and servant of the Lord

country. Electricity, clean water, and reliable transportation and communication networks are luxuries here. I teach courses in physics and scientific drawing at the College of the Immaculate Conception, or CIC-Muramba. I have over 400 students, all girls. My students inspire me to be a better person, to live with an attitude of stewardship, to lead with integrity, to forgive, and to remain hopeful that today the world can be a better place as a result of my efforts and the efforts of many others, including my students. I firmly believe that these students will soon be the doctors, engineers and leaders of Rwanda. Their enthusiasm is infectious, their hope courageous. Their enthusiasm and hope, projected from my students to me, are the fruits of my labors as an undergraduate at UW-Madison.

My experience in Rwanda has been much more than teaching physics classes. In addition to teaching, I have managed several small-scale engineering projects focused on improving local water and energy infrastructure. It turns out my degree in civil engineering paid off after all. Believe me: teaching physics to a few hundred Rwandan girls and managing water and energy development projects is challenging enough. Couple these responsibilities with the experience of living in a community experiencing extreme poverty and suffering a legacy of genocide and the challenge grows tremendously. To top it off, I live in a convent with five Catholic nuns. Let's just say the lifestyle here is very different from that of Madison.

My undergraduate career at UW-Madison began six years ago in 2001 and concluded in December 2006. While my UW-Madison diploma attests to some measure of academic success, it was the extracurricular experiences that had a more profound and lasting impact on me. My participation in the Engineers Without Borders (EWB) organization first introduced me to development work in Rwanda. In EWB I learned to lead, first as president and then as Rwanda project manager. I was able to draw on a deeply rewarding and enlightening experience at the LeaderShape Institute in fulfilling my EWB leadership responsibilities. I gained a fresh perspective on community service and service-learning by working with the Morgridge Center for Public Service. In fact, it was a Wisconsin Idea Fellowship, administered by the Morgridge Center, which enabled me to travel to Rwanda (for the first time) during the summer of 2004. I believe that these extracurricular activities, in addition to a demanding and rigorous engineering curriculum, allowed me to step out into the world for the first time, proudly carrying the banner of the Wisconsin Idea into the heart of Africa.

So how has my UW-Madison experience impacted my life? In short, I gained opportunities to apply classroom theories and exercises to real-world problems in Madison, in Wisconsin, and in Africa. I learned how to apply an ethic of service to my work. I gained a broader worldview and a deeper appreciation of cultures other than my own. My career at UW-Madison provided me with a stepping stone to reach the poorest of the poor, orphans and widows, students seeking a chance for a better life, a country seeking forgiveness and a path forward. To be sure, the path I have chosen has not been easy. But as Robert Frost wrote, "Two roads diverged in a wood, and I – I took the one less traveled by, and that has made all the difference."

- 7. What are you reading now?
  Great Speeches of the 20th Century
- 8. What's the best piece of advice you've ever received?
  In the face of adversity, one must have courage and patience
- 9. What's on your iPod?
  I don't own an iPod, and hopefully never will.
- 10. What is your proudest life achievement?
  Leading a team of engineering students to Africa for a month-long service trip

Appendix 22: Servant-leader: Kevin.D.Orner, recent graduate

THE COLLEGE OF ENGINEERING
UNIVERSITY OF WISCONSIN-MADISON

Student news - Building on a legacy: UW-Madison students improve Ecuador water quality

"I've got a project for you," University of Wisconsin-Madison Civil and Environmental Engineering Professor Peter Bosscher told Jonathan Blanchard and Kevin Orner in August 2007, during one of the trio's weekly gatherings at Bosscher's home.

Blanchard and Orner, civil and environmental engineering students who graduated in May 2008, listened as their mentor described a design to fix a water pipeline serving five small communities in central Ecuador.

"The day he told us, we said, 'Yes, we'll do it.' We went home and started putting together a proposal that week," says Orner.

Along with fellow civil and environmental engineering student David Tengler, Blanchard and Orner tackled the project for their senior design capstone project, a requirement for all civil and environmental engineering seniors.

The result is a 10 km-long system of PVC pipes that provides equal amounts of water to the villages of Larca Cunga, Agualongo, Panecillo, Yambiro and San Juan Loma.

Water equity is a major improvement: Before the project, the communities furthest from the mountain spring could only draw water for one hour late at night while the communities closest to the source drew an estimated 100 gallons per person per day.

Civil and environmental engineering students Jonathan Blanchard , Kevin Orner and David Tengler receive a plaque from five communities in Ecuador that will benefit from a new water pipeline the students implemented in June. (*large image*)

"We all felt privileged to do a project that influences people's lives in such a positive way," says Tengler.

Implemented in Ecuador in June 2008, the project is also a meaningful tribute to a mentor who lived to serve others. Bosscher died in November 2007 after a battle with kidney cancer.

"We've been so tremendously influenced by Peter and we want to keep remembering what he's taught us," says Blanchard. "The pipeline, which has been dubbed the Peter Bosscher Memorial Waterway, is a living memorial because it will keep providing abundant water for years to come."

The idea for the pipeline redesign originally came from researchers at the UW-Madison Center for Global Health, who noticed local struggles with water access while conducting a field study in Ecuador. Sensing that an engineering solution was necessary, Curtis Johnson, a professor emeritus of pharmacy and medicine, invited Bosscher to survey the system. Lori DiPrete Brown, the Center for Global Health assistant director, worked with Bosscher in the field and stayed connected with the community. She also oriented the students.

Bosscher was the advisor for the UW-Madison chapter of Engineers Without Borders, a nonprofit organization that designs and implements sustainable engineering projects in foreign countries. Blanchard, Orner and Tengler were active members of EWB—Blanchard and Orner even led a project to construct a sewer pipeline in El Salvador in January 2008.

Their EWB connections also led them to Tom Siebers, a civil and environmental alumnus and retired engineer who acted as a resource and mentor for the students.

"I enjoyed it tremendously," says Siebers. "You can purchase a vacation to another country, but you only see it from a distance. This enabled us to live and work with people who could touch you and be touched by you."

Other alumni and industry contacts were involved with the project by way of funding. The Civil and Environmental Visiting Committee financed the project, which cost $12,500.

"The board saw a legitimate need and saw the passion of the students," says Civil and Environmental Engineering Professor and Chair Russell. "When our alumni and industry partners are asked to help, they respond, especially when you articulate how your plan is going to make a difference."

In March 2008, Orner and Tengler traveled to Ecuador during their spring break to meet community members and gather field data. After tweaking the design for the rest of the semester, the three students and Siebers returned to Ecuador to implement the project from May 27 to June 10.

Prior to the group's arrival, the communities gathered to excavate the pipeline trenches. The Ecuadorian tradition of gathering together to work for the good of the community is known as a *minga*.

"There were women with year-old babies on their back willing to climb a kilometer uphill in bare feet to lay pipe," recalls Orner. "That was just business as usual."

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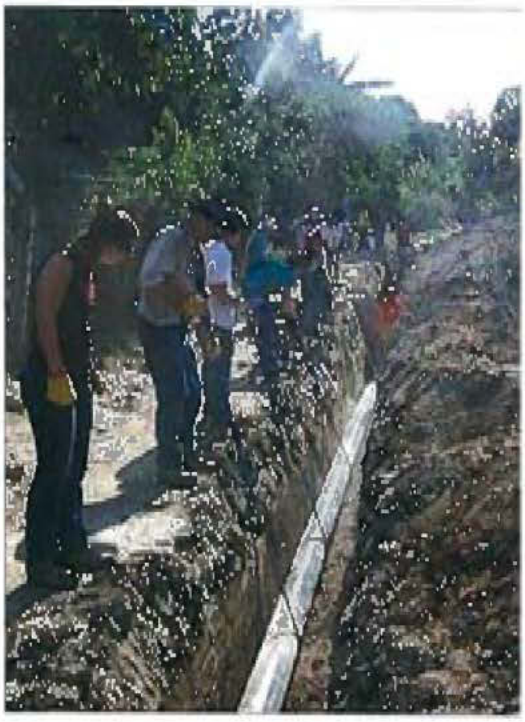
UW students help El Salvadoran towns build wastewater system

Feb. 27, 2008
by Sandra Knisely

New Year's Eve in Nejapa, El Salvador, looks a lot like the Fourth of July. At Griselda Guzman's house, homemade fireworks lighted the front yard, where the guests dancing outside her pale yellow home included 11 University of Wisconsin-Madison engineering students and three advisers.

That first night of celebration launched three weeks of local hospitality toward the students, who are members of the UW-Madison chapter of Engineers Without Borders (EWB). The group spent its winter break in El Salvador to begin construction on a mostly gravity-based wastewater system that will link two nearby communities to the sewer system in the larger city of Nejapa.



Students from the UW-Madison chapter of Engineers Without Borders spent their winter break in El Salvador to begin construction on a gravity-based wastewater system that will link two nearby communities to the sewer system in the larger city of Nejapa.

Community members from the two small towns of La Granja and Nuevo Ferrocarril approached Rotary International for help in 2005. A contact then turned to the UW-Madison chapter of EWB, a nonprofit organization that partners with communities in the United States and developing countries to undertake sustainable engineering projects.

In El Salvador, residents worked alongside the UW-Madison students digging trenches, laying pipe and packing soil to cover the pipe. Community leaders, schoolchildren and even a grandmother toiled in the heat every day with the EWB volunteers.

"This whole project is for the community-they asked for it, they know they need it, and we were there to help them," says EWB member Leah Kammel, a natural resources and environmental engineering student.

La Granja is home to 850 El Salvadorans, while Nuevo Ferrocarril has 1,500 residents. The homes, which are pieced together with wood, metal and other materials, only recently received running water.

However, for co-project managers and civil and environmental engineering students Jonathan

Blanchard and Kevin Orner, seeing life in El Salvador made them reexamine what they define as poverty. "There are ways that Americans are 'poorer' than my El Salvadoran friends," says Blanchard. "There's a real sense of community in La Granja and Nuevo Ferrocarril, and a real sense that everyone is connected. So there's a pervading atmosphere of respect, and a willingness to serve selflessly and lend a hand at the drop of a hat."

The trip also served as a test of leadership. Upon arriving in El Salvador, the team learned its original design didn't quite match local building codes and that it would be impossible to dig the trenches merely with shovels in soil Blanchard describes as hard, compact, tropical clay.

Blanchard says the golden rule in a project like this is always to be flexible. After the first few days, the team was ready with a design that did meet code. The students also brought in a backhoe–and the results were a success: The group laid 500 meters of pipe, built five manholes and compacted–by hand–500 cubic meters of soil.

During their trip to El Salvador, EWB members also gave presentations to schoolchildren about sanitary habits and taught local community members how to set up hand-washing stations. Additionally, they took water samples that will be analyzed at the Wisconsin State Health Laboratory of Hygiene to further help community members identify and treat wastewater pathogens.

Ultimately, the wastewater system will stretch approximately 6,700 meters to connect to Nejapa, and UW-Madison EWB members plan to return to El Salvador to help community members as they take over the construction process.

For the students, the trip was an opportunity to blend their technical skills and humanitarian interests. "It was amazing to be able to use our engineering skills and actually make a difference and help people," says Kammel.

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