

Engineering Emotional Intelligence: Course Development and Implementation

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Abstract

This paper describes Engineering Emotional Intelligence (EEI), a course developed and implemented in the College of Engineering at the University of Illinois at Urbana-Champaign (UIUC) in Fall 2000. Part of an overall college effort to encourage the development of intrapersonal (self-knowledge) and interpersonal (ability to understand and interact successfully with others) skills among engineering undergraduate students, EEI aims to assist students to begin consciously developing their emotional intelligence, and to be more fully prepared for their professional and personal lives. One of our main goals is to help students to bring awareness of their own emotions to their life experiences, and to develop the skills to recognize and work with the emotions of others.

As current research on emotional intelligence (EI) has demonstrated, EI is a significant indicator of personal and professional success. Further, both industry and academia recognize that the best engineering students will have well-developed inter- and intrapersonal skills in addition to their technical skills. This paper provides a brief outline of the concept of emotional intelligence, and points out the particular usefulness of this competency for engineering students.

This paper elaborates upon the following overview of EEI, providing examples of assignments, activities, student work, and evaluation strategies: The course itself begins by asking students to identify their individual values and beliefs, and then to craft these into a Personal Mission Statement. The instructional team emphasizes self-awareness and personal motivations and helps students build those insights into a Personal Development Plan that is revised throughout the semester. We then work on interpersonal skills: communication, empathy, service, collaboration, conflict negotiation, constructive discontent and influence. EEI concludes by focusing on building effective teams and organizations, mentoring and coaching others, and the importance of perpetual learning—not just from courses but also from observation and reflection. This paper closes with our future plans for the course and for our continuing efforts to integrate emotional intelligence into an engineering curriculum.

I. INTRODUCTION AND RATIONALE FOR THE COURSE

EI was developed in response to a constellation of needs. This constellation is made up of the now familiar but often vaguely defined group of concepts known as “soft skills.” These skills are often used interchangeably, or to mean more than one thing at a time; for example, “teamwork” can include multi-disciplinary, inter-disciplinary, formal or informal teams and/or groups, and “communication skills” can and usually does refer to anything from writing and speaking to creating graphical illustrations to listening well. Somewhere in between teamwork and communications skills are interpersonal skills, and finally, qualities such as flexibility, curiosity, and life-long learning are generally included in this group of competencies. The importance of this group of “soft skills” is frequently emphasized in many areas of engineering education.¹

EI does not claim to address the development of all of these skills; indeed *emotional intelligence* itself as a concept, as well as its two constituent terms *emotion* and *intelligence*, are open to various interpretations.² EI attempts rather to distill from a broader constellation one crucial and overlooked concept in engineering and technology curricula. And that is that emotions are real and important, and as significant an indicator of success as intellectual and academic ability.³ By beginning with this main concept, we can help our students to move towards developing the self-awareness necessary for acquiring and honing other critical competencies.

II. BRIEF BACKGROUND OF EMOTIONAL INTELLIGENCE

Daniel Goleman, psychologist, journalist in behavioral and brain sciences, and author of Emotional Intelligence and Working With Emotional Intelligence, writes:

“In a sense we have two brains, two minds—and two different kinds of intelligence: rational and emotional. How we do in life is determined by both—it is not just IQ, but *emotional* intelligence that matters. Indeed, intellect cannot work at its best without emotional intelligence. Ordinarily the complementarity of limbic system and neocortex, amygdala and prefrontal lobes, means each is a full partner in mental life. When these partners interact well, emotional intelligence rises—as does intellectual ability.”⁴

Goleman’s Emotional Intelligence popularized a concept that had long been the subject of study by cognitive scientists, most notably Howard Gardner, author of Multiple Intelligences. Gardner’s work challenges the primacy of linguistic and logical-mathematical skills in assessing intelligence, and argues that “If you do well in language and logic, you should do well in IQ tests and SATs, and you may well get into a prestigious college, but whether you do well once you leave is probably going to depend as much on the extent to which you possess and use the other intelligences” [e.g. spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, interpersonal intelligence, and intrapersonal intelligence].⁵

It is these last two forms of intelligence—interpersonal and intrapersonal—that comprise a large part of what has come to be called emotional intelligence. That is, the ability to understand other people, and the ability to form an accurate model of oneself and to use that to function effectively in life. It is the application of emotional intelligence to the professional arena that has sparked the interest of educators and industry, for, as Robert Cooper and Ayman Sawaf, authors of *Executive EQ: Emotional Intelligence in Leadership and Organizations*, argue, “Today’s fast-changing, more open and fluid style of work puts a premium on the combination of intellect and EQ [emotional quotient], especially when it comes to trusting and teaming with others to solve problems and seize opportunities.”⁶ Cooper cites a study of “star performers” at Bell Labs in which engineers and scientists who were ranked near the top of academic IQ tests were reviewed for job performance. It was found that what distinguished the “star performers” from others were the abilities to motivate themselves, take the initiative, build rapport, and seize opportunities—all cornerstones of emotional intelligence. As Goleman writes, “Emotional intelligence skills are synergistic with cognitive ones; top performers have both.”⁷

Emotional intelligence is of particular importance for engineers and engineering students for several reasons. First, as Goleman points out, “The more complex the job, the more emotional intelligence matters—if only because a deficiency in these abilities can hinder the use of whatever technical expertise or intellect a person may have.”⁸ Second, engineering students are immersed in curricula that allow little if any room for the development of EI competencies, and may in fact be encouraged to focus on logical-mathematical intelligence to the detriment of EI skills. Finally, based on our experiences with our EEI students, we believe that precisely because of the competitive, rigorous nature of engineering curricula, students must be better equipped to encounter challenges and set-backs, and to develop resilience and self-motivation.

III. COURSE OBJECTIVES AND GOALS: WHAT DO WE WANT STUDENTS TO BE ABLE TO DO?⁹

Through exploration of the area of emotional intelligence, students are able to identify personal EI competencies and areas for improvement, and build on these competencies and skills. Students determine how to anticipate and manage their emotions, and to anticipate and work with the emotions of others. Specific competencies that are targeted include: self-awareness, personal development, empathy, constructive discontent, conflict resolution, resilience, and growth. Through focused attention and effort, students strive to make incremental changes in their EI competencies. Students work both individually and in teams, and use activities, discussion and reflection to attain the course objectives.

At the end of the course, students have written and revised a Personal Mission Statement and a Personal Development Plan, which will serve as roadmaps for their continuing emotional intelligence development.

IV. INSTRUCTIONAL STRATEGIES: HOW CAN WE HELP THEM DO IT?

A. Course Organization

EI is organized around a methodology that helps students progress from personal awareness and knowledge, to interpersonal development and organizational development.

The course begins with a section on **Personal Development**. Through a series of reflective questions, we prompt students to think about their values and beliefs, the qualities they like about themselves, and the things they would like to improve about themselves. We then ask them to reflect on their personal motivations, and we use two assessment tools (a Thematic Apperception Test and a Motivation Styles Survey) to help them identify the values and personal goals that drive and motivate them.

We also utilize the Emotional Competence Inventory (ECI), a tool initially developed by Daniel Goleman and Richard Boyatzis, used by us for research purposes with their permission. We have modified the ECI into an electronic assessment tool through which students receive personal feedback from no less than three people whom they identify as being able to provide information on how the student functions in a range of interpersonal situations. Using the information gathered during this first section of the course, students craft both a Personal Mission Statement and a Personal Development Plan that reflect their own values and beliefs, and goals for self-development. The students also participate in a 3.5 hour team-building experience that takes place during one of two Saturday “labs.” This experience builds camaraderie and trust among class members.

The second section of the course focuses on **Interpersonal Development**, and we use several interactive activities that help students to identify their tendencies and characteristics in relating to others. A key focus of this section of the course is empathy, as we believe that empathy is a foundational component of emotional intelligence. Students complete an empathetic listening activity and reflect on their strengths and weaknesses in this area. Students also organize and implement a Service Project as part of the second experiential “lab.” Working in teams, they select and plan a Service Project, often with the help of the UIUC Office of Volunteer Programs, and implement it during the 3.5 hour time slot set aside for the “lab.” Other key competencies that are addressed in section two of the course are leadership, followership, competition and collaboration, constructive discontent, and resilience.

Section three deals with applications of emotional intelligence concepts to **Organizational Life**. We discuss influence, teamwork, and mentoring. Students also revisit and revise their Personal Development Plans, evaluating their successes and continuing to work on weaknesses. The tools used during the course allow and encourage students to engage in perpetual learning about the topic of emotional intelligence.

The following pages show the course syllabus, which includes required readings, and a graphical organization of course topics and development. The graphic organizer reflects the progression from self-awareness (intrapersonal skills) through investigation of one’s personal values, beliefs

and motivations, to interpersonal effectiveness, and the application of these skills to teams and organizations.

**Engineering Emotional Intelligence
Course Syllabus—Topics, Readings & Contact Hours**

SECTION I: PERSONAL DEVELOPMENT
(15 contact hours + 3.5 hours experiential lab)

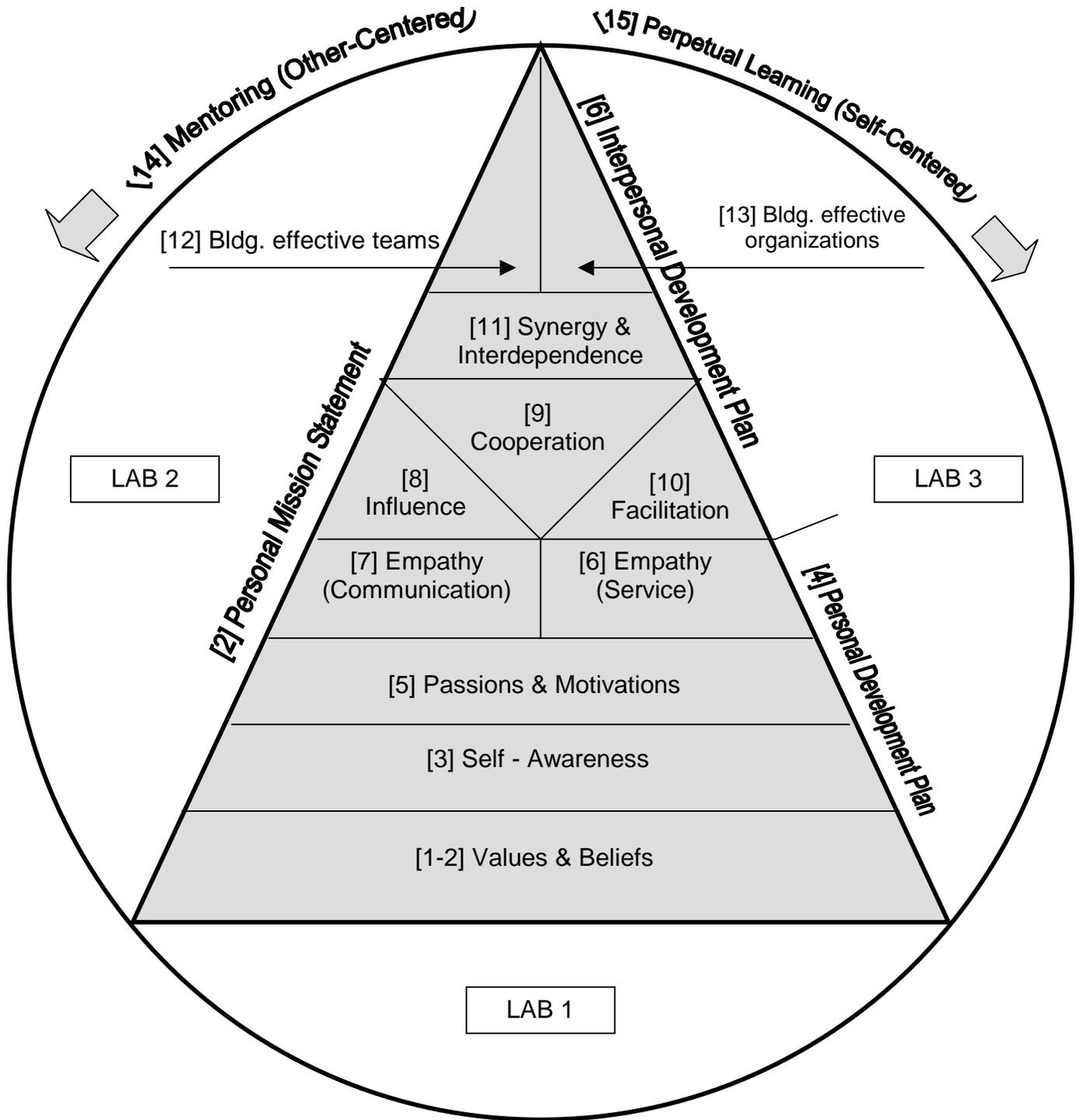
Hours	Topic	Pre-Class Readings	Subject of Readings
3	Introduction to EEI theory	Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u> . Pp. xxvii-16 [~24 pgs] Goleman, Daniel. "What Makes a Leader?" Kelley, Robert E. <u>How to be a Star at Work</u> . Pp. ix-36 [~39 pages]	<ul style="list-style-type: none"> ➤ <u>Intro/Ch. 1</u>: EQ Introduction ➤ <u>Ch. 2 & 3</u>: EQ Introduction ➤ <u>Introduction</u>: The Star Performance Model
3	Values & Beliefs	<i>FINISH ABOVE READINGS</i> Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u> . Pp. 135-146 [~12 pgs] Covey, Stephen. <u>The Seven Habits of Highly Effective People</u> . Pp.99-129 [~49 pages] Segal, Jeanne. <u>Raising Your Emotional Intelligence</u> , chs. 1 & 8 Personal Mission Statements	<ul style="list-style-type: none"> ➤ <u>Ch. 9</u>: Unique Potential & Purpose ➤ <u>Habit 2</u>: Begin with the End in Mind ➤ High EQ at Work
3	Self-Awareness Self-Assessment	Goleman, Daniel. <u>Working with Emotional Intelligence</u> . Pp. 49-72 [~24 pages] Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u> . Pp. 65-80 [~16 pages] ECI Survey	<ul style="list-style-type: none"> ➤ <u>Ch. 4</u>: The Inner Rudder (Self-Awareness) ➤ <u>Ch. 5</u>: Authentic Presence ➤ Read Instructions
3.5	LAB 1: Team Building Experience	NONE	N/A
6	Goal Setting Personal Development Plans	Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u> . Pp. 147-162 [~16 pages] Kelley, Robert E. <u>How to be a Star at Work</u> . Pp. 98-120 [~23 pages] Covey, Stephen. <u>The Seven Habits of Highly Effective People</u> . Pp.146-182 [~37 pages] Personal Development Plans—first draft	<ul style="list-style-type: none"> ➤ <u>Strategy 3</u>: Managing Your Whole Life at Work ➤ Sample Personal Devlp. Plan ➤ <u>Habit 3</u>: Put First Things First

SECTION II: INTERPERSONAL DEVELOPMENT
(15 contact hours + 3.5 experiential lab)

1.5	Identifying Motivators	<p>Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u>. Pp. 100-117 [~18 pages]</p> <p>Kelley, Robert E. <u>How to be a Star at Work</u>. Pp. 49-73 [~25 pages]</p>	<ul style="list-style-type: none"> ➤ <u>Ch. 7: Constructive Discontent</u> ➤ <u>Strategy 1: Initiative</u>
3	Empathy—Communication	<p>Segal, Jeanne. <u>Raising Your Emotional Intelligence: A Practical Guide</u>. Ch 6: “Becoming Empathetic: How Intelligence Becomes Wisdom” [~20 pages]</p> <p>“Learning: Listen from the Inside Out.” Stone, et al [~20 pages]</p>	<ul style="list-style-type: none"> ➤ Empathetic Listening
3	Empathy—Service	<p>“Service Learning: Who Benefits and Why.” Arthur Stukas et al. [~40 pages]</p>	<ul style="list-style-type: none"> ➤ Service Learning
3.5	LAB 2: Service Projects	NONE	N/A
3	Service Reflection Leadership & Followership	<p>Kelley, Robert E. <u>How to be a Star at Work</u>. Pp. 149-193 [~45 pages]</p>	<ul style="list-style-type: none"> ➤ <u>Strategies 5 & 6: Followership & Small-L Leadership in a Big-L World</u>
3	Cooperation & Collaboration	<p>“Entrepreneurship Reconsidered: The Team as Hero.” Robert B. Reich. <u>Harvard Business Review</u>, May-June 1987. [7 pages]</p> <p>Kelley, Robert E. <u>How to be a Star at Work</u>. Pp. 194-233 [~40 pages]</p>	<ul style="list-style-type: none"> ➤ Collective Entrepreneurship
1.5	Conflict, Negotiation, & Diplomacy	<p>Covey, Stephen. <u>The Seven Habits of Highly Effective People</u>. Pp.205-231 [~27 pages]</p> <p>Personal Development Plans—second draft</p>	<ul style="list-style-type: none"> ➤ Habit 4: Think Win/Win

SECTION III: APPLICATIONS TO ORGANIZATIONAL LIFE
(15 contact hours)

3	Influence & Rapport Building	<p>Goleman, Daniel. <u>Working with Emotional Intelligence</u>. Pp. 163-197 [~35 pages]</p> <p>Kelley, Robert E. How to be a Star at Work. Pp. 234-254 [~21 pages]</p>	<ul style="list-style-type: none"> ➤ The Arts of Influence ➤ <u>Strategy 9</u>: Persuading the Right Audience with the Right Message
3	Affecting Change	<p>Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u>. Pp. 181-205 [~25 pages]</p> <p>Cooper, Robert K. <u>Executive EQ: Emotional Intelligence in Leadership and Organizations</u>. Pp. 255-272 [~18 pages]</p>	<ul style="list-style-type: none"> ➤ Ch. 12: Influence Without Authority ➤ Ch. 16: Creating the Future
3	Mentoring	<p>Kelley, Robert E. How to be a Star at Work. Pp. 74-97 [~24 pages]</p> <p>“One Professor’s Dialectic of Mentoring.” Harvey J. Kaye. The Chronicle of Higher Education. April 21, 2000 v. 46 i333 pA68(1). [~2 pages]</p>	<ul style="list-style-type: none"> ➤ Finding Personal Mentors ➤ <u>Strategy 2</u>: Knowing Who Knows ➤ Mentoring at the University
3	Perpetual Learning	<p>Covey, Stephen. <u>The Seven Habits of Highly Effective People</u>. Pp.287-307 [~21 pages]</p>	<ul style="list-style-type: none"> ➤ Habit 7: Sharpening the Saw
3	Final Discussions	<p>Kelley, Robert E. How to be a Star at Work. Pp. 283-290 [~8 pages]</p> <p>O’Neal, John R. <u>The Paradox of Success</u>. Pp. 11-52 [~42 pages]</p> <p>Final Personal Development Plans</p>	<ul style="list-style-type: none"> ➤ Conclusion ➤ Preface & Chapter 1: The Dark Side of Success
FINAL 3	Final Presentations	Presentation of Portfolios & Guided Design Activity: “Emotional Intelligence at Work”	



B. Assignments and Activities

Most discussion of the readings and topics listed on the syllabus took place through on-line discussion, which was facilitated by one of the instructors. Students were also required to do several written assignments throughout the semester, as mentioned previously. The most important of these were the **Personal Mission Statement (PMS)**, which provided the basis for the **Personal Development Plan (PDP)**, and the **Empathy Exercise**. Below we describe these three assignments, provide examples of a Personal Mission Statement and a Personal Development Plan, and describe student responses to the Empathy Exercise.

The PMS and the PDP work together to strengthen students' written communication skills, as well as their critical thinking and brainstorming abilities. As can be seen from the assignment instructions and the example assignment, crafting the PMS and the PDP is a rigorous iterative process meant to stimulate creativity and deeper thinking.

1. The Personal Mission Statement¹⁰

Students were given the following instructions for their Personal Mission Statements:

A personal mission statement is a concise statement of your own personal 'philosophy'. Why in the world would anybody want one? In the scheme of this course, your statement is going to be your tool for deciding what skills and competencies you want to develop. However, in the scheme of life, your personal mission statement might be the best tool you have when confronted with a whole range of difficult questions.

The Covey reading from this past week described in detail some of the ways you can leverage your statement, but I encourage EVERYONE to post questions/comments/reflections on the group discussion board this week about what you liked/dislike/felt indifferent about in the reading, and what further ways we might apply the concept of a personal mission statement to our lives. Remember, your personal mission statement is something that will grow with you throughout your life, not something set in stone!

Still stumped as to how in the world you begin to write such a thing? Here's the method I used--feel free to adapt it to your own preferences or do something completely different!

- (1) (1) First, I brainstormed a list of words that are important to me; these included common nouns (like Mom, Dad, Sister) and well as some more abstract ones (like integrity, compassion, creativity, caring)
- (2) (2) Second, I began consolidating groups of words that seemed to fit into appropriate categories (Mom, Dad, Sister, became Family; caring and compassion became love). This narrowed down a list of 75-100 words to about 30.
- (3) (3) Third, I rank ordered the importance of those 30 words and eliminated those that really seemed only marginally important to me (Sports, which had been the merger of soccer and swimming, got cut from my list because I thought it was well enough covered by the concept of Health and wasn't specifically *that* important to me.)
- (4) (4) Then I took the 20 or so remaining words and tried to string them together into a paragraph that fully captured the meaning or intent I had when I wrote them. (For instance, you might

phrase like building loving relationships with my family and community through empathy and service)

- (5) (5) Lastly, I stepped away from the statement for a few days. Over that time I thought of several things I had forgotten and wanted to include, and I also had a chance to take a fresh look at what I had already written to make it more readable.

Remember the key to this assignment is *genuine thoughtfulness*, not literary perfection, and while a good personal mission statement should clearly express your priorities and values, it might be 30 words or 300!

Personal Mission Statement Development—Vocabulary Brainstorm

Creativity/Live Creatively	Diversity
Service/Civic Duty	Mentor
Integrity	Change
Empathy	Patient
Love/Compassion	Role Model
Relationships	Mentor
Happiness	Forgiveness
Fun	Thoughtful/Reflective
Mindfulness/Conscientious	Thankful
Health	Listen
Values/Principles	Open
Family	Understanding
Friends	Flexible
Peace	Honest
Spirituality	Authentic
Optimism	Trusting
Challenge	Resilient
Society/Humanity	Accountable
Global	Rebellious
Local	Independent
Humility/Humble	Interdependent
Confidence/Self-Assuredness	Good-Humored
Adventure	Laugh
Risk	Quality/Excellence
Community	Engaged
Emotional Intelligence	Respectful
Learning (Life-Long)	Extraordinary
Knowledge	Empower
Wisdom	
Proactive/Initiative	
Win/Win/Cooperative	
Synergy	
Balance	
Passion	
Intuition	
Motivation	
Leadership	
Influence	

Dominant Categories:

- (1) **Love**= Loving, Compassionate, Forgiving, Trusting, Patient, Empathetic, Peaceful
- (2) **Service**= Duty, Civic-Minded, Spiritually Connected, Think Globally, Act Locally
- (3) **Integrity**= Honesty, Authenticity, Accountability, Respect, Values, Principles
- (4) **People & Relationships**= Relationships, Family, Friends, Interdependent
- (5) **Mindfulness**= Mindful, Conscientious, Humble, Humility, Thankful, Balanced
- (6) **Education**= Education, Knowledge, Wisdom, Life-Long-Learning
- (7) **Leadership**= Leadership, Proactive, Initiative, Influence, Motivation, Passion, Change
- (8) **Empowerment**= Synergy, Cooperation, Win/Win, Community-Building
- (9) **Value Quality & Creativity**= Pursuit of Excellence, Extraordinary, Innovative, Success
- (10) **Optimistic**= Laugh, Good-Humored, Free-Spirited, Good-Natured, Cheerful, Healthy

Acronym (Mnemonic):

Service

Integrity

Mindfulness

People & Relationships

Leadership

Empowerment

Love

Optimism

Value Quality & Creativity

Education

After consolidating the concepts I wanted to include in my personal mission statement, I decided it was important I be able to easily recall the ten key components. An interesting way to do this, I thought, might be to create an acronym. A wonderful byproduct of the acronym developed—S.I.M.P.L.E. L.O.V.E.—was that in addition to serving as a useful mnemonic, it also captured what I feel are the two most important principles in my personal mission statement: Humility and Compassion. Of all the qualities listed above, these two are the ones I most want to influence every decision I make and every action I take.

Personal Mission Statement—An Example

SERVICE- Service has a spiritual importance in my life. I believe spirituality is a commitment to something larger than one's self, and I choose to serve because I find it spiritually fulfilling and personally meaningful. For me, service is a philosophy and a way of life—it will be a part of my profession, my community involvements, and my daily interactions.

INTEGRITY- Integrity is important to me because it is the foundation for trusting relationships. Accountability, authenticity, and a genuine commitment to values and principles all depend on integrity. Acting with integrity is most difficult when two values or principles come into an apparent conflict with each other. When this occurs, I pledge to act with integrity by reflecting deeply on my values and my intuitions before acting, rather than simply following the path of least resistance.

MINDFULNESS- For me, mindfulness is ultimately an appreciation of the underlying value in all things. I believe mindfulness is the cornerstone of humility—a quality I endeavor to have illuminate every part of my life. Living a mindful life requires the cultivation of a clear, lucid awareness of the everyday experiences of life as well as the more subtle processes of the mind. Being mindful enhances the ability to focus and accurately assess experiences as they happen by reserving a part of one's consciousness outside of the day-to-day.

PEOPLE & RELATIONSHIPS- I believe people and relationships are the most important value centers in the world. I pledge to value others by recognizing the inherent dignity of all living beings and by cultivating deep, loving, reciprocal relationships.

LEADERSHIP- I believe personal and interpersonal leadership are the foremost drivers of progress. Successful leadership requires the proactive influencing others (or one's self) towards a particular goal or objective and the taking intelligent risks. The best leaders lead with humility and are also excellent at assuming the widest variety of roles within a team.

EMPOWERMENT- Empowering others is an important part of building successful relationships—be it within a family, at work, or socially. Empowerment involves making conscious choices that allow others to develop their fullest potential, even when the making of such choices involves personal sacrifices in the short-term. To this end, I will build synergistic, cooperative relationships and endeavor to be a life-long mentor.

LOVE- I believe that love, along with integrity, are the two most important components for building successful relationships. Empathy, forgiveness, patience, trust, and peace are all rooted in love. The most comforting, peaceful experiences in life are rooted in love and the intrinsic satisfaction of participating in loving relationships.

OPTIMISM- I will remember to laugh—particularly at myself—and to be good-humored in my interactions with others and in my personal reflections. I will hold an optimistic (but balanced) attitude towards life by cultivating a strong and durable sense that things will turn out all right in my work and life, despite setbacks and losses, difficulties and frustrations. Ultimately, my optimistic attitude is rooted in the deep enjoyment I receive from loving interactions with

others and the fulfillment I receive when my skills and abilities are stretched to their limits in a voluntary effort to accomplish something worthwhile.

VALUE CREATIVITY & QUALITY- I will value diversity and creativity. I will endeavor to live creatively and to create and cultivate things of quality in a variety of ways, shapes, and forms. I will understand creativity and quality in the broadest possible context.

EDUCATION- I believe everyone remains both a teacher and a student throughout their life. I will search out new skills and knowledge, as well as share what skill and knowledge I have with others. In addition to staying informed about the current happenings of the world, I will seek to balance my learning by continually exploring a variety of perspectives and viewpoints. Whenever possible, I will combine personal experience with learning.

2. The Personal Development Plan

Students were given the following instructions for their Personal Development Plans:

One of the major themes running throughout this course is that of *personal development*. For that reason, one of the most important assignments you are being asked to complete is a personal development plan (PDP)—essentially a roadmap to achieving your EI development goals.

Your PDP needs to have three key components to be effective. First, it must truly be *personal*. Unlike most other assignments you've probably encountered, this one is only useful to the extent that it describes goals important to you. Likewise, it will only be effective to the extent that the PDP is something you take personal ownership of—something that works for you. The guiding force of your PDP will be your personal mission statement. Secondly, the heart of the PDP is development or skill building. The skills you wish to develop should include both strengths you wish to build on and weaknesses you wish to remediate. Thirdly, your PDP should long-term plan of action, not one that can be completed in just 15 short weeks. At the end of the course you will be expected to demonstrate the progress you've made in each focus area of your PDP, but you will not be expected to have completed any single area.

Personal Development Plan—An Example

(Part I: Personal Assessment)

To complete this section of my PDP, I used the ECI Survey Results and the “Defining Strengths” Handout provided in class this week.

Strengths: The work I’m best at and <i>most love to do.</i>	Stretch: <i>Pursuits or passions I want to devote more time and attention to.</i>	Non-Talents: <i>The areas of work or life I feel weakest in or enjoy the least.</i>	Needs: Resources or conditions I need <i>to do my best work.</i>
Developing Teams & Organizations	Developing my Creativity	Personal Leadership— Creating & Maintaining Focus	Balanced Schedule (not over-committed)
Self-Assurance	Building Deep & Meaningful Relationships	Adaptability	Specific, Measurable, “Bite-size” goals
Being Goal-Oriented	Balancing Goals & Priorities Across Different Areas of My Life	Dealing with & Compensating for Failure	Accountability to Others
Analytical Thinking	Inspiring Enthusiasm in Others	Self-Disclosure	Room for Creativity and the Exceeding of Expectations
Creative Problem Solving	Building Community	Story-telling	Meaningful Objectives

→ Adapted from “Defining Strengths”; Robert K. Cooper, Ph.D., 21st Century Leadership; Advanced Excellence Systems

Four Key Focus Areas

Strength or Weakness	Value/Quality/Skill	Goal	Connection to Personal Mission Statement
Strength	Developing my Creativity	To practice <i>living creatively</i> in simple, everyday ways.	Valuing Creativity & Quality
Strength	Building Deep & Meaningful Relationships	To develop deeper friendships with several individuals	People & Relationships
Weakness	Creating & Maintaining Focus	To improve my focus & concentration	Mindfulness
Weakness	Story Telling	To develop my story-telling ability	Optimism (Good-Humored Fun)

(Part II: The Plan)

Personal Mission Statement:	S.I.M.P.L.E. L.O.V.E (Service, Integrity, Mindfulness, People & Relationships, Leadership, Empowerment, Love, Optimism, Valuing Creativity & Quality, Education)
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Goal:	Connection to Personal Mission Statement:	Mechanisms & Frequency:	Measurable Outcome:
To practice living creatively in simple, everyday ways (Personal Strength)	Valuing Creativity & Quality, Optimism	(1) To change one habit every two weeks in a creative way that enhances enjoyment or effectiveness of the activity. During those two weeks, I will practice the habit in the new way. Depending on how challenging the habit is, I may only change one every 4 weeks.	✓ After six months, I will have examined 12-15 small habits, and perhaps changed 3-5 of them permanently.
		(2) To pick up one new hobby I've always wanted to try and practice it on a weekly basis. The short list of hobbies I'd like to try are: Aikido, Yoga, Photography, Drawing, Story-Telling, Theater, Star-Gazing, Creative Writing, and/or Reading classic Works of fiction.	✓ After one month I will have researched and practiced this new hobby at least 4 times. (i.e., I will have registered and participated in a class, or read and acted on a book.) ✓ After 6 months I will have developed moderate understanding/proficiency, as compared to beginners.
To develop deeper friendships with several individuals (Personal Strength)	People & Relationships, Love	(1) Once a month, I will write a short, handwritten letter to a friend with whom I haven't corresponded in the last month.	✓ After 6 months I will have written 6 letters.
		(2) Once a day I will try and share with a friend something (big or small) I appreciate about them.	✓ After a month I will have shared between 15-30 things with friends
		(3) I will self-monitor the way I communicate with others. Once a week, after having an extended conversation with a friend, I will reflect in my journal about what went well in the conversation, what didn't go well, and how I might direct things differently.	✓ After a month I should have approximately 4 entries ✓ After six months I should have close to 20 entries.

<p>To improve my ability to focus and concentrate (Personal Weakness)</p>	<p>Mindfulness, Personal Leadership</p>	<p>(1) I will practice setting realistic goals and priorities, and allotting realistic timeframes for their completion. I will also practice the ‘5 minute rule’ when there is an activity I don’t feel like doing, I will devote 5 minutes of concentrated effort to engaging in it.</p>	<p>✓ Along with part (3), I will reflect on how many times I used the ‘5 minute rule’ and whether or not it was effective.</p>
		<p>(2) I will pick up a hobby that develops focus and concentration, such as Yoga, Aikido, or meditation. (I will probably combine this activity with the one listed above, #2 of ‘living creatively’)</p>	<p>✓ After one month I will have researched and practiced this new hobby at least 4 times. (i.e., I will have registered and participated in a class, or read and acted on a book.)</p> <p>✓ After 6 months I will have developed moderate understanding/proficiency, as compared to beginners (i.e., a noticeable difference ☺.)</p>
		<p>(3) For 2-3 minutes at the end of each day, I will jot down, roughly, how I spent my time. Next to each item, I rank how valuable the activity is against the qualities in my personal mission statement.</p>	<p>✓ At the end of one month I will have 20-30 very short journal entries, assessing how I’ve spent my time and where I most need to focus my attention.</p>
<p>To develop my story-telling ability (Personal Weakness)</p>	<p>Optimism (Good-Humored Fun), People & Relationships</p>	<p>(1) During ‘down-time’ (whether driving alone or waiting in line) I will practice developing a story about something humorous that happened to me or a friend in the past week and telling it back to myself.</p>	<p>✓ After a month, I should be able to sit and recall, in moderate detail, 4 humorous events that happened.</p>
		<p>(2) Once a week, after having a conversation with or listening to a friend, I will reflect in my journal about what made that conversation interesting or boring (this involves monitoring myself as well as the friend.)</p>	<p>✓ Combined with #3 of “developing deeper relationships”, after a month I should have approximately 4 entries</p> <p>✓ After six months I should have close to 20 entries.</p>

SUMMARY

Timeframe	Mechanism to Practice	Time Required
<p>Daily</p>	<p><input type="checkbox"/> Practice the new, more creative, habit</p>	<p>5 minutes</p>
	<p><input type="checkbox"/> Quickly journal about how I spent my time & effectiveness of the ‘5 minute rule’</p>	<p>5 minutes</p>
		<p>2 minutes</p>

	<input type="checkbox"/> Share with a friend something I appreciate about them	
Weekly	<input type="checkbox"/> Journal about a deep conversation I had and what made the conversation & any stories effective/ineffective.	15 minutes
	<input type="checkbox"/> Research/Practice my new hobby	60 minutes
	<input type="checkbox"/> Create a short, entertaining story	15 minutes
Biweekly	<input type="checkbox"/> Change a new small habit in a creative way	15 minutes
Monthly	<input type="checkbox"/> Write a letter to a friend I haven't communicated with in 6 months or more.	30 minutes

3. The Empathetic Listening Exercise

The assignment that elicited both the greatest amount of student grumbling as well as the richest, most authentic student work was an exercise in empathy. Students were asked to listen empathetically to another person for at least 30 minutes, and to record their conversations. They were then asked to listen to their recordings, and to reflect in a 2-3 page paper on how well they employed empathetic listening skills and how they might improve in the future. Initial student responses to the assignment were that it seemed contrived and artificial, and that the tape-recorder would feel intrusive and unnatural.

Despite these reservations, every one of the students showed evidence of a positive and often powerful response to the activity. One student, in describing a conversation with his roommate in which he used empathetic listening techniques to help discover the source of an interpersonal conflict wrote: “I feel that overall I did a good job of listening from the inside out. I was incredibly excited to breakthrough the external situation to get down to the underlying issue at hand. I think this came as a surprise to both my roommate and me....Most importantly, I can say my attempt at empathetic listening was a success because we came to the root of the problem and brainstormed steps toward solving it.” Another student who initially described his partner in conversation as his “patient,” indicating that he viewed empathetic listening as an objectifying, distancing activity as opposed to one that connects people to one another, ended up by suggesting the metaphor of empathy as a “bridge” to another person’s feelings and circumstances.

One of the most vocal students in the course challenged the usefulness of the empathy assignment in his reflection. His partner in conversation was his “workout buddy” of whom he writes, “Although we are friends already and have known each other for a while we had never had any sort of deep conversation.” This student argued that the assignment felt contrived and too one-sided, i.e. that “real” empathy involves giving and receiving, not just “listening”: “If I were ever to have a conversation like that I might as well just have my ‘friend’ lie down on a couch and bill him/her for my time as a psychologist.” He goes on to say, “As a computer scientist I can program my computer to repeat what I said back to me using synonyms and altering the order a bit. I can talk at it then and have it be an empathetic conversation according to the definition [of the assignment]. However, I would not consider that an empathetic conversation by any stretch of the imagination.” This student’s conclusion is that “empathy is an emotion, not a technique.” Despite his rejection of the assignment’s usefulness, it’s clear from his comments that his reservations and his critical thinking about the assignment led him to precisely the right place.

4. Interactive Activities

In-class time was used to review key concepts and to engage in interactive activities that illustrated key concepts such as competition and collaboration, conflict resolution, etc. For example, we used an activity called “Win As Much As You Can: An Intergroup Competition” (*Structured Experiences Kit*) in order to dramatize the merits of both competitive and collaborative models within the context of intragroup and intergroup relations, and to illustrate the impact of win-lose situations. We also used several self-assessment tools that helped students determine their motivational styles, their approaches to change, and their capacities for both leadership and followership.

C. Teaching Strategy

E EI is taught by a team of instructors from different backgrounds—human behavior, engineering, literature and communications, and philosophy. The current instructional team is Professor Ray Price, Severns Chair of Human Behavior, Department of General Engineering, Professor Bruce Litchfield, Assistant Dean in the College of Engineering, Leslie Crowley (Ph.D. English), Program Manager for the Academy for Excellence in Engineering Education (AE³), and Jonathon Dolle, a senior in General Engineering and Philosophy. All instructors are involved in the development of course materials, and all participate in course lectures and discussions. All members of the team perform most all instructional tasks, such as leading discussions and activities, grading and providing feedback to students, and maintaining the course web site. The instructional team meets weekly to review course materials and plan class activities. Future instructors will be either required to have taken EEI, or to have experience teaching the subject material.

We found several advantages in this teaching arrangement. The overall workload of the course was distributed among several people, the students in the course could witness a working team, hear different perspectives on emotional intelligence and thus gain a broader exposure to what is certainly a large topic, and the instructors could offer different levels of involvement with the students. For example, Jon Dolle held several “informal” group meetings with students throughout the semester, which gave him unique opportunities to gather feedback from the class, and to pick up on topic and issues that were important to the students.

IV. EVALUATION AND ASSESSMENT: HOW WILL WE KNOW IF THEY CAN DO IT?

Students in EEI were evaluated on several levels and were given a variety of opportunities to perform effectively. Students received points for participating in on-line discussions, for their weekly reflections on the course readings, for their PMS and PDPs, their empathy exercises, and the assignments related to their Service Projects. The instructional team opted to use a Personal Portfolio in lieu of a “final exam” on emotional intelligence.

A. The Personal Portfolio Assignment

The personal portfolio was an opportunity for students to demonstrate what was learned versus simply what was taught. Students were asked to demonstrate what they learned and how they developed as a result of the course and their personal efforts. Past assignments could be used to demonstrate use of emotional intelligence competencies and skills, though it was necessary for the students to explain how any artifacts (papers, testimonials, information, or creative media) they chose supported the level of their learning.

Students were given the following instructions for developing their portfolios:

The following course objectives may serve as a starting point to begin reflecting on some of the things we tried to teach. The specific objectives are listed in the order that is indicative of greater learning and application. It

is more valuable, from our perspective, to incorporate the skills and use them in daily activities than it is to understand the concepts and model. Typically a (b) level of accomplishment is worth more than an (a) level and (c) and (d) levels are worth more than (b) levels (e.g. 1, 2, and 3 points, respectively). Some of these objectives were more effectively covered and required that were others. However, the opportunity was provided to develop these skills and capabilities.

Please use the following objectives as a starting point to demonstrate your learning. Feel free to add to or subtract from this list. Specific, in-depth examples of learning are more valuable than many vague examples. There are 16 total points available for this assignment. Using the point guideline above, you will be able to assess how many points you have earned based on the number and level of examples you provide.

Course Objectives

1. Overall Objectives (all equally weighted)
 - a. Increased awareness of emotions and the ability to act effectively on the information and energy they provide.
 - b. Improved interpersonal relationships.
 - c. Enhanced ability to work effectively in teams.
 - d. Commitment to develop self and others continuously.
2. Emotions
 - a. Recognize emotions as they occur in yourself and in others.
 - b. Understand emotions, their purpose and their impact.
 - c. Use emotions for information, energy and action. Cite examples of recognizing and using emotions in your daily activities.
3. Motivations
 - a. Describe the range and types of motivations.
 - b. Describe how motivations affect perceptions.
 - c. Recognize evidence of and impact of motivations in daily activities. Articulate your own motivations. Cite examples of recognizing and understanding motivations in your daily activities.
4. Values
 - a. Describe the role of values and how they affect emotional behavior.
 - b. Articulate your personal values and understand why these are important.
 - c. Incorporate your values into a Personal Mission Statement that captures the essence of your purpose in life.
5. Goals and Improvement
 - a. Articulate the impact of goals and describe various models of goal setting.
 - b. Describe your personal strengths and weaknesses and articulate the importance of building on your strengths and compensating for your weaknesses.
 - c. Incorporate values, goals, and action into a Personal Development Plan. Update and adjust your personal development plan.
6. Empathetic Listening
 - a. Articulate the importance of and the models for empathetic listening and listening for understanding. Describe why empathetic listening is the key skill for all other interpersonal relationships.
 - b. Practice and demonstrate the ability to listen empathetically.
 - c. Cite personal examples of empathetically listening in school, friendships, and difficult situations.

7. Giving and Receiving Feedback
 - a. Describe the principles and the steps for giving and receiving feedback.
 - b. Practice giving and receiving feedback. Focus on the process and then reflect on the feelings associated with the different steps.
 - c. Ask for and receive feedback on personal skills and abilities.
 - d. Take advantage of opportunities to give feedback, both positive and negative. Increase the frequency of both getting and giving feedback.
8. Team Building
 - a. Describe two models of team formation and the dynamics associated with different stages of team development.
 - b. Observe and describe team stages and dynamics in several team situations.
 - c. Participate in and document a team effort to accomplish a project. Plan and implement the project while observing and helping with the team dynamics.
9. Conflict and Collaboration
 - a. Describe why conflict occurs and what has to be present for collaboration to occur.
 - b. Articulate a model for turning conflict into collaboration.
 - c. Experience conflict and collaboration in a laboratory setting and reflect on the causes and consequences of conflict.
 - d. Observe and reflect on the conflict and collaboration evidenced in your daily activities. Reflect on your contribution to each dynamic.
10. Influence
 - a. Describe various influence methods and strategies.
 - b. Assess your own preferences for influence methods.
 - c. Practice several influence attempts and reflect on the results and how you could improve.
11. Negotiation
 - a. Describe negotiation models and strategies.
 - b. Assess several situations and describe the best negotiating strategy.
 - c. Practice negotiating several personal situations and reflect on the process, the outcomes, and the emotions.
12. Change and Constructive Discontent
 - a. Describe two models of change.
 - b. Reflect on change from the point of view of the initiator and the receiver of change. Reflect on the need for constructive discontent in order for you to initiate change.
 - c. Develop a strategy for and plan to introduce a change. Reflect on what went well and how you could improve.
 - d. Reflect on a personal change that was initiated by someone else. Focus on the change process and your emotions during that process.
13. Coaching and Developing Others
 - a. Describe the philosophy and the methods for coaching and development.
 - b. Using skills from listening, influence, feedback, and change attempt to coach and develop a colleague. Reflect on the integration and application of the skills as well as on the results achieved.
 - c. Commit to look for and take advantage of development opportunities (both for yourself and others) in the future.

During the final exam period, we asked each student to present the most important piece of their portfolios to their EEI colleagues. Student portfolios ranged from collections of their work throughout the semester, visual representations of various emotional intelligence concepts, and one audio recording of a “testimonial” from a student’s friend describing the differences she saw in her as a result of the course.

VIII. Conclusions

Student feedback on the course has been very positive. Students valued the course both for its relevance to and difference from their traditional engineering curricula. The only significant source of dissatisfaction was the use of WebCT, the on-line course delivery tool we utilized. We relied heavily on WebCT to provide information on course readings and assignment, for submission and grading of assignments, and for group discussion of course topics. The main source of dissatisfaction was the slow and often cumbersome nature of this server-based program, and students felt that it discouraged rather than facilitated discussion postings. Future versions of the course will rely less heavily on an on-line tool for interactive discussions; we plan to use more class time to discuss readings and topics, and will perhaps offer more “informal” meeting times for students to gather to process their experiences in the course. We will continue, however, to use an on-line course tool to deliver content and to receive and grade written assignments.

We have expanded the course from its initial version to include more contact hours (represented in the syllabus included here) and we hope to receive both General Education and Social Science certification, which will make the course more appealing to engineering students with crowded curricula. We hope to interact with other units across campus such as the Insight Illinois, a leadership development program. We are also interested in continuing our learning on the topic of emotional intelligence, and we welcome contact with other institutions pursuing similar goals.

We are also continuing to develop the infrastructure to assess EI skills across a broader spectrum of students. In EEI, we utilize the Emotional Competency Inventory (ECI) (Goleman & Boyatzis), an on-line assessment tool for students to assess their skills and get feedback from associates. We plan to use this tool to evaluate skill levels among first-year and senior students, and then to observe which activities are associated with greater skill. Our intention is to also gather data to track first-year students over their college careers to see what changes occur, and the possible causes of those changes. Through this work, we hope to emphasize the value of EI skills, and to expand the integration of EI learning into the engineering curriculum at UIUC.

Bibliographic Information

- ¹ Smith, K. A., *Project Management and Teamwork*, Madison, WI, McGraw Hill Higher Education, 2000, p.6.
- ² Meyer, J., Salovey, P. & Caruso, D., "Models of Emotional Intelligence," In R. Sternberg (Ed.) *Handbook of Intelligence*. UK: Cambridge University Press, 2000.
- ³ Schutte, N.S., Malouff, J.M., Hall, L.E., Haggerty, D.J., Copper, J.T., Golden, C.J., & Dornheim, L. "Development and Validation of a Measure of Emotional Intelligence," *Personality and Individual Difference*, 25, 1998, pp. 167-177.
- ⁴ Goleman, D. *Emotional Intelligence*, New York, Bantam, 1995, p. 28.
- ⁵ Gardner, H. *Multiple Intelligences*, New York, BasicBooks, 1993, p. 8
- ⁶ Cooper, R.K. and Sawaf, A. *Executive EQ: Emotional Intelligence in Leadership and Organizations*, New York, Perigee, 1997, p. xxxiv.
- ⁷ Goleman, D. *Working With Emotional Intelligence*, New York, Bantam, 1998, p.22.
- ⁸ Ibid.
- ⁹ We have adapted Kenneth Bain's (Searle Center for Teaching Excellence) model for course organization, in which he suggests that the most successful courses are organized around sets of questions. The most basic of these are: 1) What do we want our students to be able to do? 2) How can we help them do it? 3) How can we tell if they can do it? This information is located at: **<http://president.scfte.northwestern.edu/>**.
- ¹⁰ The instructions for the Personal Mission Statement and the Personal Development Plan, and the example Personal Mission Statement and Personal Development Plan were contributed by Jonathon Dolle.

Biographical Information

LESLIE CROWLEY

Leslie Crowley is a Program Manager and writing specialist for The Academy for Excellence in Engineering Education (AE³). Currently part of the instructional team for Engineering Emotional Intelligence, Leslie has also taught Learning Through Inquiry, a self-directed learning experience for freshmen engineering students. Leslie has also worked with senior engineering students in capstone design courses, and has taught writing and communications in the context of different disciplines, including Business and Technical Writing and Introduction to Fiction. She holds a Ph.D. in English from the University of Illinois at Urbana-Champaign, a Masters in English from Temple University and a Bachelor of Arts in English and Honors from Villanova University.

JONATHON DOLLE

Jonathon Dolle is a senior undergraduate student at the University of Illinois at Urbana-Champaign. He is double majoring in General Engineering and Philosophy and plans to graduate with his B.S. and B.A. in August 2001. Jon has been actively involved in the development and implementation of Engineering Emotional Intelligence since its inception. He was also a Program Co-Director of the Engineering 100 program, a student-led orientation program for first-year engineering students, and has been active in several campus community service groups, such as Alternative Spring Break and the “Big Brother” Program. Jon is also a Knight of St. Patrick, a Chancellor Scholar, and has received several campus leadership awards.

BRUCE LITCHFIELD

Bruce Litchfield is Director of AE³ and Professor of Agricultural Engineering. He is an Assistant Dean in the College of Engineering in the Academic Programs Office. He is also a member of the Campus Honors Faculty. His research is heat and mass transfer of biomaterials, sensors and process controls. Bruce is the founder of the College of Engineering Teaching College. A former Process and Project Engineer at General Foods Corporation, he holds a Masters of Science and Doctor of Philosophy from Purdue University and a Bachelor of Science in Mechanical Engineering from the University of Illinois. He has been highly recognized for excellence in teaching throughout his career at UIUC and is also a registered professional engineer.

RAY PRICE

Raymond L. Price Professor and Severns Chair for Human Behavior, joined the UIUC College of Engineering faculty in 1998. He has had a long career in industry working in Management and Organization Development and Human Resources. Most recently Ray was Vice President of Human Resources at Allergan, Inc. Prior to that he was the Director of Employee Training and Development for Boeing Commercial Airplane Group. He also held various management positions with Hewlett-Packard, including Manager of Engineering Education. Ray graduated from Brigham Young University with a B.S. degree in Psychology and a M.A. degree in Organizational Behavior. He earned a Ph.D. degree in Organizational Behavior from Stanford Graduate School of Business.