



”The Bottom 3” – A New Revolution in Leadership Development

Mr. Eric Paul Pearson, Northrop Grumman, Electronic Systems

Eric Pearson is the Director of Cross-Sector Program Initiatives for Northrop Grumman Corporation. His responsibilities include relationship building and cross culture leadership development. Eric has a BS in Education from Bowie State University and an MS in Technical Management from the Johns Hopkins, Whiting School of Engineering. Eric is best known for his development and leadership of the Northrop Grumman Electronic Systems New Graduate Engineering Rotation Program and the Recent Graduate Leadership Training Program (LTP), having selected and mentored over 650 leaders through the 18 month journey of self-discovery. In addition Eric has served on several Industry Advisory Boards at North Carolina State University, currently serves as a volunteer Adjunct Professor in the School of Engineering at Cal Poly, San Luis Obispo, and recently completed a five-year term on the Board of Directors for the Southern Association of Colleges and Employers.

Mr. Timothy Boyd, Northrop Grumman Corporation

After graduating from the California Institute of Technology in 2006, Tim started working at Northrop Grumman as a Systems Engineer. Since 2006, Boyd has not only been involved in performance analysis and on-orbit sensor characterization but has also managed technical teams as a technical team lead and a deputy Integrated Project Team lead within the SEIT (Systems Engineering Integration and Test) organization. Boyd has presented his work at both academic and industry conferences. Furthermore, to address his passion for leadership development and community building, he kickstarted a chapter of ConnectING; a professionally recognized yet non-traditional development program focused on engaging and assimilating new employees to the workplace through leadership development activities and networking. He is currently one of two Western Region liaisons for the program. Boyd was also selected to be a part of the company’s prestigious LTP (Leadership Training Program) and, just two cycles from graduation, planned and facilitated two recent offsite retreats, events involving a hundred participants, requiring months of detailed planning and acute project management. An avid nature lover, Boyd’s hobbies include back country camping and hiking as well as learning self reliance in the wild.

Mr. Noah Miller, Northrop Grumman, Electronic Systems

Noah Miller – Change Agent, Intrapreneur, and Software Engineer – brings passion to all that he does, especially in fusing technology and people to accomplish the mission. Most recently, “His business awareness and leadership skills have grown in scope as he takes on challenges beyond his cost and schedule objectives that are geared towards helping elicit excellence from others in the company.” He has kicked it into high-gear as an engineer-teacher after graduating from a prestigious experiential leadership training program in the Spring of 2010.

His unique perspectives on leadership come from experiences in both small, private companies with at most ten people to large, public companies that include upwards of fifteen thousand. He has worked as a facilitator, trainer, engineer, mentor, and leader within his ten years of industry experience. As part of a legacy greater than himself, Noah is a true believer in the divine, and seeks strength through diversity in both perspectives and open and honest dialogue.

Noah holds a Bachelor’s of Science in Computer Science from the School of Engineering and Applied Science at the University of Virginia, located in Charlottesville. He has recently relocated from Virginia to Chicago, IL. In his past life, he became an expert in modeling and synthesizing machinery control systems for the Maritime industry and founded the OWNERSHIP process as means to drive culture change from all directions within the organization. He currently works as a senior engineer to develop cutting-edge infrared counter measure systems, striving to use technology as a shield to human life. It’s all about the ends, not the means.

“The Bottom 3” – A New Revolution in Leadership Development

In the search to identify the best, young leadership talent who are ready to step into major leadership roles, “The Bottom 3” has emerged as a result of a visionary approach to how we teach, train, and develop extreme leaders. If embraced by corporate and educational systems, this “best practice” will serve as a new model for successful identification of individuals with the greatest potential and true desire to become highly effective leaders.

After a ten-year leadership development experiment involving seventeen groups ranging from twenty-four to forty-six participants each, that included a total of over five-hundred-fifty recent college graduates, a philosophy of "The Bottom 3" developed from within and has spawned an outpouring desire to carry forward the challenge of identifying and creating highly capable leaders for the future. The identification of these extreme leaders is described and their future challenge is detailed in the later portion of the paper.

This paper begins with the background and most successful elements of Northrop Grumman, Electronic Systems’ Leadership Training Program (LTP) including; the history of the program, the vision and purpose of "The Bottom 3", the value of its best practices to individual companies and industry as a whole, and the impetus behind the recommendation to embrace the ideals of "The Bottom 3" within the University setting; more specifically to preemptively foster early learning and growth in our future leaders.

The parallels of the Northrop Grumman Leadership Training Program to two University Engineering Leadership Programs at North Carolina State and California Polytechnic, San Luis Obispo universities is offered as evidence of extreme leadership being successful in both the University and Corporate environment. It is of critical importance that we develop and offer opportunities to enrich the same passion and preparedness for leadership development at the university level we expect to achieve in the corporate environment. The programs at these two universities presented as excellent examples of how a Bottom 3 attitude accomplishes great leadership development in the university environment.

In closing, this paper will explore the vision of "The Bottom 3", the program creation, and the observable success that has been achieved through empowerment of its motivated leaders. These new-found rising stars begin to seek their own level of extreme engagement through self-selection of their mentors and by assuming personal responsibility for creating and delivering new revisions to the program for the next generations, thus, creating a legacy unto itself.

The Leadership Training Program (LTP) Vision

On January 3rd, 2003 Eric Pearson, Sector Director, Engineering Development Programs approached the Vice President of Engineering at Northrop Grumman Electronic Systems, regarding an idea to host a “pilot” leadership offsite weekend. The offsite would completely embrace the definition of the term, as it would occur in the woods with the intention of providing a unique opportunity to participate in an experiential leadership

journey. The plan was to solicit individual volunteers from the current pool of recent college graduates at the Baltimore, MD (BWI) facility and take them to a rustic environment for discussions and evaluations of several challenging events requiring teamwork, networking, and quick leadership decision elements; all part of an introduction to leadership theory. In response, the Vice President of Engineering told Eric to, “go off and create the “Semper Fi” (always faithful, always loyal) of New Graduate Leadership Training Programs in Engineering”, and to have it ready to implement in January 2004. The goal was to develop an evaluation model by offering leadership development, capable of identifying the top 3% of new graduate leaders intended to inspire them to seize the opportunity to become the future leaders of Northrop Grumman, ES. The V.P. believed that a strong program was absolutely critical and was willing to burn-out 20% of the participants as a way to uncover “the best of the best”. The challenge to find the Top 3% of leadership potential had begun.

As the reader will experience within this paper, through the history and progression of the development of the Northrop Grumman, Electronic Systems, Leadership Training Program (LTP), a special group of individuals began to stand-out from the rest, bonded together, and became "The Bottom Three". They developed themselves to become the highest quality of future leaders who inspired themselves and their peers to create a stronger organization for others to follow. The "best of the best" of the LTP sought greater opportunities to lead, volunteered to create teams to fill voids in local community volunteer services, attended five or six offsite retreats instead of only the minimum two required and assumed the responsibilities as leaders by taking full responsibility for developing and leading the offsite weekends. Throughout their journey their efforts led to encouraging their peers to volunteer as well. A small group of developing leaders became the inspiration for others to follow. They were challenged to "think out of the box" and have carried the journey down the road and across the country.

LTP Development

Eric Pearson was faced with a difficult task; how to identify 3 out of every 100 volunteer leadership participants who would stand above the rest from within a program that was already designed to be highly selective in its participants. After examining currently existing Leadership Programs in highly respected Fortune 500 companies, an Offsite weekend on the Catoctin Mountain was planned for April 2003. The weekend would consist of 2 nights, 1 full and 2 half-day experiential tasks while roughing it in the woods with peers who were more likely strangers than colleagues at work and included seven hours of community Service at Camp Greentop to support the League for the Handicap of Baltimore, MD.

The importance of the weekend to Northrop Grumman was evidenced by the appearance of three well respected keynote speakers: Jim Pitts (ES Sector President), Jim Armitage

(Vice President of Engineering & Manufacturing), and George Reynolds (ES Director of University & Industry Initiatives). Each corporate leader shared his personal insights on leadership and offered inspirational & personal stories; fully aware this was possibly the beginning of a potential game changer for the future of the Corporation and the race to recruit the best young talent in the country. Uncooperative weather combined with untried “training” methods did nothing to derail the pilot. After feedback discussions and compiling participant surveys, the weekend experiment was declared a success and the program development continued.

The proposed deadline to have the Leadership Training Program vetted and implemented by 1 January 2004 seemed a long way off. The following summer was consumed with more independent research, program development, and was greatly enhanced through a partnership with two content developers from Learning and Development who accepted the challenge to create and deliver the Foundations of Leadership (FOL) classroom sessions. The FOL portion of the program served as critical introduction to the knowledge sharing of leadership theory.

The Program elements became the following:

1. Foundations of Leadership classroom experiences
2. networking opportunities through several events
3. offsite experiential weekend retreats
4. Gettysburg Leadership Staff Rides
5. a new hire mentoring program (called Navigator Mentors), and
6. a Community Services Program led by LTP volunteers to give them leadership opportunities through service projects

Starting with a basic structure designed for growth, the Leadership Training Program was set in motion and showcased in September 2003 (four months ahead of schedule).

Transitions and Growth

To continue growth for the program and to establish a solid base for a successful future, numerous trial elements were added to the program. The LTP had now become BWI’s all-discipline Leadership Training Program for recent college hires. In addition to expanding the participant pool to include ES Sector Campuses, this selective program was initially offered to high-potential employees with less than two years experience, and rapidly expanded to include employees with eight years or less since graduation. The numbers of participants in the program continued to grow as new classes of 30 – 50 individuals were selected every six months to enter the eighteen month program; each to begin their own personal leadership journey.

One of the new and more challenging elements of the growing program was proposed by the Learning and Development partners. To provide additional insights into corporate culture to the participants once the program had expanded outside of the Baltimore campus, the program divided each class into subgroups, called learning teams. These teams were then asked to research and select a Sector Business problem, develop problem statements and propose solutions. Despite the varying levels of success or failure, each participant took away a greater appreciation for the difficulties in leading others across disciplines and several company locations.

Empowerment became a critic element of the program success

Most of the positive transitions within the program, successful accomplishments, leadership development and cross-campus successes were the result of true empowerment where seasoned LTPs (even from those with less than 1 year of service) assumed, and often asked for responsibility to: lead, guide, and direct their peers through Offsite Retreats, Community Service events, and by creating other experiential leadership activities. The most successful element of the program was the establishment of the program as a “safe environment” where young leaders could experiment with leadership techniques and we learn from our failure. Gradually (over the ten year period of the program), a separation of a small group of developing leaders rose above the rest of the other well-qualified participants in the program. In addition to performing at the highest technical level possible, these individuals bonded in small groups and continued to volunteer their service to the LTP and other emerging Employee Resource Groups across the Sector; long after their program completion ended, taking on leadership and support roles, just to stay involved and give back to the Corporation.

Emergence of the Top 3% of program participants

As time progressed, a special group of program participants began to distinguish themselves above the rest. They demonstrated a passion for personal growth and the burning desire to pass on their newly acquired knowledge to the next generation. Suddenly the Vision (dream) to identify the top 3% of the leadership participants was beginning to develop. The “best of the best” began self-identifying through their actions, not through test and evaluation, and by bonding together, created new and greater opportunities for themselves and others to lead within the organization. In an industry where it was custom to require twenty to twenty-five years, experience before allowing individuals to lead, suddenly these extreme self-identified leaders were being provided opportunities where they were successful and gained great respect from the community.

Open Recognition of what we were looking for

During one of the opening presentations at the eleventh Offsite Weekend Retreat in 2009, the Director of Development Programs asked the audience to raise their hand if they

believed themselves to be in the top 3% of leaders. Except for those wise beyond their years, almost everyone raised his/her hand. After all, wasn't this a select group of high achievers who excel both at work and play? Eric proposed a follow-up thought, "Now, look around this room of your peers. Do you believe you are in the top 3% of those attending this offsite retreat?" As quickly as they had risen, hands dropped causing a rush of air to escape from the room; each LTP participant realizing that one's ranking is always relative to others and suddenly they found themselves in special company. The top 3% are extreme producers, passionate leaders who go far beyond the minimum requirements of being "good enough" to reach for the ultimate goal of perfection (reaching for, yet recognizing perfection is impossible). Charles Bukowski once said, "The difference between a [leader] and a professional is that a professional does as well as he can with what he has set out to do and a [leader] does exceptionally well at what he can't help doing."⁽¹⁾ The top 3% is a group that can't help what they do or how they do it. They are visionaries who naturally understand what true leadership requires and are willing to sacrifice themselves if it makes the lives of those around them better. One must naturally step far beyond the minimum to earn the distinction of being called one of the top 3% of our future leaders.

As of September 2012 and having evaluated over 600 participants as to their interest and involvement in the program, we realized there was a significant difference in levels of engagement. It had become relatively academic to identify the top 3% through a set of common characteristics and extreme performance.

Identifiable Credentials of the Top 3% of LTPs

1. Have exemplary work performance and assumption of unassigned leadership roles
2. Are fully engaged in an introspective and heartfelt approach to the LTP experience
3. Previously led much of their University Honors Programs Capstone Team project
4. Served as volunteer lead for Community Service / Mentor programs
5. Assumed leadership role in newly formed Employee Resource Groups (ERGs)
6. Orchestrated and led Lesson's Learned forums based on LTP or offsite feedback
7. Presented during in-house symposiums and/or outside conferences
8. Attended more than 3 offsite retreats
9. Grew through service in several roles during offsite retreats
10. Led LTP Closeout program development and execution
11. Continue to support peers in LTP offsite development and execution
12. Enjoyed coaching and mentoring peers after program completion
13. Volunteered to lead and develop an entire offsite retreat
14. Implemented leadership lessons back in functional homerooms
15. Presented papers on Leadership at ASEE, NACE, CIEC and SoACE conferences
16. Carry a strong combination of Vision, Passion and Desire for working with others
17. Demonstrated willingness to sacrifice self for the greater good of their peers

18. Developed and implemented new ideas at local sites to improve employee engagement

The Creation of "The Bottom 3" – an element of transition

As the Director of Development Programs, Eric Pearson, completed his ten year journey leading the creation and constant evolution of the Northrop Grumman Electronic Systems Leadership Training Program he chose to return to engineering leadership responsibilities in 2012. At the same time, the Sector Learning and Development organization began leading a new initiative to create a more synergistic and vertically aligned Leadership Development Strategy for the sector which included a redesign of existing Leadership Development Cohort programs. The three new Cohort Leadership Programs (Personal, People and Organizational Cohort Programs) will leverage the successes and lessons learned from the previous LTP and other leadership development efforts.

Eric chose this time to celebrate the vision of "The Bottom 3" as a separate entity from the new direction chosen by the organization. Though most of those identified as members of "The Bottom 3" remain at Northrop Grumman, pursuing technical and leadership roles, their selection and participation in any future activities / events of "The Bottom 3" are not part of the Northrop Grumman Electronic Systems leadership talent management process. Further reference to "The Bottom 3" in this paper refers to the individuals identified and not a Northrop Grumman Electronic Systems sponsored group.

So, what does it mean to be in "The Bottom 3"?

After the data had been reviewed and analyzed, leadership credentials identified, the final step in the process was to determine how to recognize the top 3%; those selected through mostly objective selection criteria based on performance of the observable passionate demonstration of leadership skills. How does that translate to a "Bottom 3" attitude? As a result of sharing the vision this past year with some of the deeply committed leaders within the LTP, something truly unique happened. Now that we have realized it is possible to recognize a true separation of the best from the rest, Tim Boyd jokingly responded by poking fun at the Vision of searching for and identifying the top 3%. He started calling himself and others members of the program support team as, "The Bottom 3", removing the emphasis from recognition for being special. True leaders are givers from the heart and do not seek recognition or awards.

The "Bottom 3" has taken on the symbol of strength from the base of the pyramid in order to provide the underlying foundation for others to build their leadership skills. During her MIT Commencement speech in 2000, Carly Fiorina defined the obligation of a true leader which interestingly enough, sums up exactly what "The Bottom 3" truly represents. She stated, "A leader's greatest obligation is to make possible an environment where people's

minds and hearts can be inventive, brave, human and strong, where people can aspire to do useful and significant things, where people can aspire to change the world.”

Having completed ten years of program development, defined the characteristics of "The Bottom 3", and embraced constant change and improvement in the program elements, it became time to identify and invite the best of over 650 program participants to join the Vision of “The Bottom 3”. As Director of the program, Eric Pearson chose five of the most giving graduates of the LTP, explained the vision of "The Bottom 3" and asked each to nominate their peers to be included in the pool of honorees. After nominating their peers, Eric used that criteria and evaluated the entire ten-year pool of program participants. He selected a total of 43 like-minded developing leaders who shared the passion and volunteer spirit of those initially selected for inclusion in "The Bottom 3".

The history of the Leadership Training Program and the vision of “The Bottom 3” has been well documented. These 43 participants were then provided shirts with “The Bottom 3” logo. This was created as a thank you for their service and leadership actions during their participation in the growth and development of the program and themselves over the previous ten years, and recognition for their accomplishments. These shirts serve as their “badge of honor”. Nothing was asked in return, because each had given far more than most to the program, and to each other. Now these leaders have the challenge to go forth and create great strides; should they choose to pursue this journey as they forge their future careers.

"The Bottom 3"		Selections by Group		
Leadership Training Program Group #	# of Applicants	# in Selected Group	# Selected for Bottom 3	% Selected for Bottom 3
I	33	24	4	16.7
II	48	29	0	0.0
III	36	25	2	8.0
IV	37	25	2	8.0
V	56	28	3	10.7
VI	44	27	1	3.7
VII	63	36	3	8.3
VIII	57	38	3	7.9
IX	40	24	3	12.5
X	55	32	2	6.3
XI	34	22	4	18.2
XII	52	35	4	11.4
XIII	62	39	1	2.6
XIV	51	36	2	5.6
XV	77	41	3	7.3
XVI	93	48	0	0.0
XVII	74	46	1	2.2

Totals	902	555	38	6.8
	% Selected	62.2		

"The Bottom 3" Diversity Counts!		
# Selected for Bottom 3	% Women	% Women & Minorities
42	40.5	61.9

Participant Locations
Amherst, NY
Apopka, FL
Azusa, CA
Bangor, WA
Baltimore, MD
Boulder, CO
Buffalo, NY
Cincinnati, OH
Charlottesville, VA
Corporate Office
Kings Bay, GA
Norwalk, CT
Melbourne, FL
Melville, NY
Rolling Meadows, IL
Salt Lake City, UT
Woodland Hills, CA
Sunnyvale, CA

"Ten Years of Leadership Training Program Data"

A Growing Vision and a new journey to pursue

With the Vision accomplished and the taste of extreme leadership imprinted on so many engineers, scientists, business managers and other professionals at Northrop Grumman, Electronic Systems it appeared time to close the book on this journey. However, some of the “Bottom 3” stayed close, asked to continue as a group in a mentoring relationship and began to walk another path; refusing to allow the journey to end. This journey will take on a new life and seek to provide unique opportunities to share the attitude of “The Bottom 3” across the corporation and other corporations hungry for “extreme leadership” experiences. Several members of "The Bottom 3" continued to support the offsite weekend retreats on their own time and travel expense to foster the development of others.

Key Attributes of a Bottom 3 Leader	
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1	High Ethical Standards - Personal & Professional
2	Visionary / Entrepreneurial approach to life
3	Excellent Communication skills
4	Community Service Volunteer
5	Passion to serve others
6	Embraces and shares feedback (team and individual)
7	Willingness to try and fail until success is attained
8	Mentors
9	A life-long learner
10	Truly On Call 24/7
11	Brings potential solutions when presenting problems
12	Views leadership as an honor, not a job
13	Constantly involved in self-evaluation

A Hope for Corporate America has sprung

What we have learned from the expression “the best of the best” is that it defines those individuals who share a like-minded interest in: tackling the tough challenges of leadership, desire to pursue continued personal growth and development, and inspired to create a unique sense of engagement in not only one’s own life but for others as well.

There is a lot of emphasis put on “Corporate Leadership” and employee engagement. The tougher it gets during these economic times combined with the increasing shortage of strong leaders in engineering disciplines, the more we search for the most promising future leaders and innovative ways to develop their leadership skills quicker. It has become a critical concern for executive leadership to determine how to keep the best employees,

develop the future leaders of the Corporation, and how best to increase the "engagement scores" across the enterprise. Northrop Grumman has spent the last ten years fully embracing Leadership Development and one of the key traits of a great leader is that people will follow you. In order for people to follow, you must impart your vision and the employees must be engaged. To supplement the internal development of several "best practice" leadership programs, Northrop Grumman, Electronic Systems engaged Gallup to survey the employees and educate the leadership and management teams, followed by educating employees in the understanding and development of action plans to increase engagement; intended to develop a stronger leadership team as well as a more engaged organization.

Gallup has been leading surveys and studies in employee engagement for over twenty-five years. During this period, Gallup has developed training and evaluation methods to assist in the strengthening the organizational leadership while assisting in implementing techniques intended to drive significant improvement in employee engagement. Gallup's efforts have resulted in greater employee retention and critical skills while adding positive improvements to "the bottom line" of the organization. It is not just about improving the bottom-line it's about survival as an organization. Gallup offers many techniques and development modules they for corporations that aspire to increase productive through right-sizing management and increasing employee engagement. The critical aspects are to determine one's individual fitness and ability to rise to the challenge of an assignment or transitional opportunity, and to determine the engagement health of the organization.

For years, "Corporate America" has complained that twenty percent of the employees do eighty percent of the work. In developing the Leadership Training Program to foster empowerment and responsibility, Eric's personal goal has been to create an environment where, "eighty percent of the people do all the work and the organization eliminates the bottom twenty percent (non-performers) who drag the organization down". When we reach that point, he believes we will have full engagement.

The Gallup Q12

(From the Gallup Management Journal, "Feedback for Real" Author: John Thackray)

"The Gallup Q12 is a survey designed to measure employee engagement and allow the organization to focus on the most important areas of employee engagement over an extended period of time. No change is quick, and lasting change requires effort from everyone to follow change-management leaders.

The instrument was the result of hundreds of focus groups and interviews. Researchers found there were 12 key expectations, that when satisfied, form the foundation of strong feelings of engagement. So far 87,000 work units and 1.5 million employees have participated in the Q12 instrument. Comparisons of engagement scores reveal that those

with high Q12 scores exhibit lower turnover, higher sales growth, better productivity, better customer loyalty and other manifestations of superior performance.

The Gallup organization also uses the Q12 as a semi-annual employee engagement Index – a random sampling of employee across the country.

The engagement index slots people into one of three categories.

1. Engaged employees work with passion and feel a profound connection to their company. They drive innovation and move the organization forward.
2. Not-Engaged employees are essentially “checked out.” They are sleep-walking through their workday. They are putting in time, but not enough energy or passion into their work.
3. Actively Disengaged employees aren’t just unhappy at work; they’re busy acting out their unhappiness. Every day, these workers undermine what their engaged co-workers accomplish.

The results of the latest Gallup engagement index (2011):

Engaged employees –	28 %
Not-engaged employees –	54%
Actively Disengaged –	17%

In other words, 71% of the workforce is either under-performing or actively undermining their work.”

We independently discovered the same type of engagement measures through the ten year existence of the Northrop Grumman Leadership Training Program (LTP), Electronic Systems Sector. Some early participants applied for the program to “check the box” and therefore, contributed minimum effort to remain in the program and did not complete all of the required components. It became easy to eliminate these “posers” as potential executive leaders in comparison to the true "Bottom 3" who rose quickly to the top through extreme performance and engagement.

The majority of participants completed all of the components; however their efforts ranged from minimum to positive experiences at varying levels of output. Less than fifteen percent gave more than required in the program. Throughout the ten-year study of the LTP, only a small percentage; gave back to the program in a significant manner upon completion of the eighteen-month program, which fostered the leadership development of others through content development and volunteer leadership, or became involved in positive mentoring experiences with others.

Most of the participants took their lessons learned back to their technical organization, and became more engaged employees as they applied their classroom and experiential lessons to their daily efforts. However, less than 10% continued to “lead by example” as extreme leaders in their personal lives and their community, or sought greater engagement through stretch assignments at work. The top 5% continued volunteering significant hours to

curriculum development for the leadership program participants who followed them, and expanded their roles as community service volunteers; quickly being recognized with opportunities to lead small groups in the business environment.

As an example of the commitment to the program the following data is provided:

The Leadership Training Program required participants attend two Offsite Weekend Retreats.

15% attended	1 offsite
70% attended	2 offsite
10% attended	3 offsite
5% attended	> 5 offsite

This example is comparable to the general population numbers reported in a standard organization-wide Gallup engagement survey. These numbers, from an exclusive and extremely challenging program, although disappointing, are not surprising. In any size group, the top 3% are still the top 3%. In the LTP we set the bar high as it's the "Olympic athlete" who goes far beyond their competitors to achieve great heights, personal satisfaction and pride for their country. This is the kind of results all organizations are looking for from their program participants. Opportunities to teach, train, and provide experiential learning while creating an environment where the "best of the best" self-identify through example and personal drive for excellence is what all corporations should pursue.

The Gallup Q12 Index

- 1) Do you know what is expected of you at work?
- 2) Do you have the materials and equipment to do your work right?
- 3) At work, do you have the opportunity to do what you do best every day?
- 4) In the last seven days, have you received recognition or praise for doing good work?
- 5) Does your supervisor, or someone at work, seem to care about you as a person?
- 6) Is there someone at work who encourages your development?
- 7) At work, do your opinions seem to count?
- 8) Does the mission/purpose of your company make you feel your job is important?
- 9) Are your associates (fellow employees) committed to doing quality work?
- 10) Do you have a best friend at work?
- 11) In the last six months, has someone at work talked to you about your progress?"
- 12) In the last year, have you had opportunities to learn and grow?

A number of offerings by Gallup that are currently in use by the Northrop Grumman Corporation in pursuit of greater employee engagement. These proven techniques and are instrumental in the development of programs for future leaders. These include: the Q12 surveys, evaluations, reporting, recommended actions going forward, as well as techniques such as Strength Finders and Management testing to assist in the identification of the

future success of potential leaders. These are not discussed in this document and can be found by visiting the Gallup website. They provide a good full-service model for any organization beginning to look at increasing engagement and developing stronger leadership development.

Use of Gallup is only one example of a number of options for companies to engage employees and enhance the development of the future leaders on an organization through the use of StrengthsFinders® surveys, assessments and evaluations. There is no guarantee this or any other method will work for every organization, however, making the effort to study and improve employee engagement will provide a richer environment for the development of "The Bottom 3" leaders.

Extreme Leadership Does Transfer to the University Setting

The key to transitioning the philosophy of “The Bottom 3” beyond the proven corporate environment to the University setting is to provide those with demonstrated leadership traits opportunities to participate and perform in a variety of leadership challenges. The more opportunities in formal and informal settings afforded the students, the more comfortable they will become and a greater participation by those who think they want to lead will occur. This will accelerate their growth as leaders and the University will begin to identify “The Bottom 3” within their campus community.

How do we educate the brightest students as they navigate difficult curriculum of an engineering school while developing the leadership skills so desperately needed not only at the corporate level, but at the university as well? Student leaders are looking for more than just a challenging education. They are searching for leadership challenges, personal growth and development and opportunities to contribute to creating positive change at the university and within the local community. Their drive to make a difference must be channeled by the School of Engineering and the student organizations, where the “best of the best” engineers and scientists will choose to self-identify as extreme leaders through their efforts and accomplishments working in team environments. These efforts will strengthen the university from within the student body.

Brian Koehler, Director, International Engagement: Engineering-Academic Affairs, serves as a prime example of how one person can create "The Bottom 3" environment at the university level. Brian’s vision is “to continually challenge and promote some of the best student leaders, here at North Carolina State, to serve the College of Engineering and nation.”

Brian, Koehler, Director, International Engagement: Engineering-Academic Affairs, has led the effort to create a Student Leaders group within the School of Engineering at North Carolina State University since its inception in 2002. He created the Vision and provided an opportunity where engineering student leaders would develop through a team atmosphere as they assumed responsibility for leading the fall and spring semester Engineering Career Fairs. Since the initial implementation of the Engineering Student

Leadership Group, the Career Fair has become the largest Engineering Career Fair in the United States. The student leaders developed the processes and procedures to: organize, advertise, facilitate, create budgets, and run this highly acclaimed event. Today's leaders train the future leaders.

Brian Koehler and Eric Pearson engaged in several conversations each year regarding the significant parallels Northrop Grumman, ES and the North Carolina State University emerging engineering leadership programs. The share ideas and thoughts and integrated the best in their own programs. In fact, Brian has recommended several of his top performers as leaders who have accepted positions with Eric's organization and continues to flourish in their personal, professional and leadership development journeys. The transition from North Carolina State University's leadership program to Northrop Grumman, ES has been a highly successful and rewarding experience for more than twenty recent graduates

The University System has the same stake in developing the extreme leadership potential of prospective students as does corporations. The best students coming out of high school have multiple opportunities to pursue their degree and are swayed by the US News and World Report rankings. The records of past student performance and their employment choices weigh heavily on the decision where the top students choose to pursue their education. When the university provides leadership development and the students excel, the next set of incoming freshmen are more likely to choose these schools. Success breeds success and draws "the best of the best" to the University systems that consistently produce successful leaders.

As the partnership within corporate America develops between Executive Management, Human Resources and Learning and Development organizations to create and embrace quality Leadership Training Programs so should Universities. Engagement of the University leaders, the School of Engineering's administration, professors, and student body must create a similar bond. This bond must become one of empowerment, where developing student leaders are afforded opportunities to lead and be led through difficult challenges, where failure is possible. The test of success cannot be measured through antiquated methods such as: multiple choice, true/false, essay or thesis presentations. The best measure of a growing leader occurs when the challenge is fairly well defined, yet the answer is unknown. The best solutions are developed when a group of like-minded people embrace a challenge together and through their diversity of thought and background discover several plausible choices and embrace the "best" answer, not just the first correct answer.

A second example of how "The Bottom 3" attitude in The School of Engineering is making a difference is at California Polytechnic San Luis Obispo; better known as Cal Poly, SLO. Key to Cal Poly, SLO's success is that the School of Engineering bases its curriculum on Project Based Learning (PBL) experiences where the students are empowered to take control of and lead within the learning environment. Everything they do is "hands-on",

where students see and experience both failure and success first-hand. The imprint of the aerospace industry is evident across the campus and the mentoring relationships between corporate partners and the School of Engineering are truly impressive.

Cal Poly serves as a prime example of a prominent university that chose to embrace an attitude of change, student empowerment and consistently develops "The Bottom 3" future leaders. The following is a list of a dozen extreme leadership opportunities developed as partnerships between corporations and Cal Poly, SLO. These results are a testament to the Universities' commitment and success in developing many of the best academic performers as well as outstanding leaders on the University campus.

Extreme Leadership on University Campus California Polytechnic University, San Luis Obispo, CA	
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1	Sales Engineering Club Leadership Program
2	Society of Women Engineers Annual Competitions
3	Aerospace Engineering Competitions
4	Student Organization Leadership Mentoring Program
5	Joint Design Engineering Project with Cal Poly, Pomona
6	Co-op / Senior Project Pilot Program participation
7	Mechanical & Aerospace Engineering Volunteers
8	Engineer's Week Plan & Execution
9	Engineering Ambassador's Program
10	Annual Concrete Canoe Competition
11	Annual Rose Bowl Float Competition (Winner, 4 times running)
12	Project Based Learning (PBL) Curriculum

Cal Poly, San Luis Obispo, California is the #1 Public Engineering School in the United States without a PhD Program.

Providing opportunities for the development of extreme leaders is a key element to the success of the School of Engineering that should be duplicated or modified at universities across the country.

One outstanding example of "The Bottom 3" attitude and its success at a university is the initial development, growth, and sustainment of the Sales Engineering Club. A few years ago some of the engineering students approached their advisor with the idea of starting a Sales Engineering Club. They were being trained as engineers, yet they wanted to offer an avenue for engineering entrepreneurs' growth and development into engineering sales.

Through support from their University Advisor, Karen Bangs, the students contacted a few of the engineering corporate partners, requested initial funding and guest speakers on the broad subject, sales engineering. Quickly they were on their way to developing a successful leadership program. Three years ago, Eric Pearson, Sector Director, Development Programs was invited to speak to the Sales Engineering Club. For two hours the students listened intently, shared in discussions and asked key questions about the value and opportunities for "sales engineers" in industry. Eric was immediately impressed with their interest and depth of questions. He purchased and sent the aspiring sales engineers fifty copies of Jeffrey Gitomer's book, "Little Red Book of Selling". This book is as much about leadership development as it is sales. That's what makes it valuable and has used it in his leadership program to develop "The Bottom 3" attitude.

Two years later, Eric attended the Sales Engineering banquet, and witnessed an amazing transformation. The banquet was well organized, heavily attended by industry, students, a large number of faculty members and the Dr. Mohamed Noori, Dean of Engineering,. This is an organization that has become embraced by all. The real surprise was watching and listening as the student leaders explained their rise from a novel idea to the most revered student group on the Cal Poly campus; not for their ability to sell widgets, but for their development of leadership within their organization and others.

The founders of the club had created a leadership structure that documented and delivered: succession planning, mentoring, tutoring and a Long Range Strategic Plan for the future of the organization. Each retiring member of the board (students graduating) introduced their replacement for the next year and highlighted the accomplishments of their replacement board members.

The president of the Sales Engineering Club spoke to their vision and related how it was their purpose to mentor other student organizations that were struggling and also provided mentors and leadership guidance to organizations willing to request assistance.

The Vision of "The Bottom 3" is alive well on the Cal Poly SLO University campus.

"The Bottom 3" Summary

It all started in 2003 as a journey to bring like-minded engineers together to create a "best practice" Leadership Training Program for Northrop Grumman, Electronic Systems Sector, and has grown to become a Vision called "The Bottom 3" where the most inspired young people coming out of the University system can pursue their dreams of making a significant difference in their work by combining their technical expertise with a growing desire to become great leaders. The success of individuals and their effect on the organization as a whole are well documented. The outpouring of success from this one program can be duplicated across industry and examples of how "The Bottom 3" attitude works in the University setting while providing support to those in engineering education for continued improvements across the country and the belief we can develop the critical thinking leaders of the future.

1 [What Matters Most is How Well You Walk Through the Fire](#) by [Charles Bukowski](#)

2 <http://www.goodreads.com/work/quotes/3702-what-matters-most-is-how-well-you-walk-through-the-fire>

3[http://www.goodreads.com/book/show/632901.What Matters Most is How Well You Walk Through the Fire](http://www.goodreads.com/book/show/632901.What_Matters_Most_is_How_Well_You_Walk_Through_the_Fire)
