March 2007

THE Bulletin OF Tau Beta Pi

A Publication for the Collegiate Chapters

Tau Beta Pi National K-12 Math & Science Initiative

by Jonathan F.K. Earle, Ph.D., P.E., Executive Councillor

Much has been written about the state of K-12 education in the United States, particularly with respect to the preparedness of our graduates to pursue careers in science, technology, engineering, and mathematics (STEM) disciplines. Currently there is perceived to be a great disparity between America and other major powers in the world with respect to performance in math and science.[1] We have entered an era in which engineering and technological skills are playing a more dominant role than ever before. Poor preparation in math and science limits the appeal of engineering to high-school graduates, and increases attrition of those who commence engineering studies.

It is recognized that an inability to produce enough graduates from these disciplines will negatively impact the national economy of the U.S., because many of our competitors in the global marketplace are graduating engineers at a much higher and faster rate than ever before.[2] This has already impacted our ability to maintain a technological edge over the rest of the world. During the past 15 years we have seen significant losses in U.S. manufacturing and engineering jobs. Our workers are competing with workers from China, India, Japan, Korea, Eastern Europe, and many other parts of the world, which have been increasing their production of engineers, scientists, and technologists. The competition is well-educated, skilled, highly motivated, and less costly. As a result, many jobs have been moving out of the U.S.

Students who are most likely to pursue careers in computational fields are often **kinesthetic learners.**

KINESTHETIC LEARNERS prefer moving around, taking things apart, and using a hands-on approach to learning.

Unfortunately, current methods of classroom instruction are geared to **auditory** and **visual learners.**

AUDITORY LEARNERS listen, talk, and discuss. VISUAL LEARNERS read, take notes, watch videos, and enjoy seeing demonstrations.

INSIDE THIS ISSUE

ISSUE AVAILABLE AT WWW.TBP.ORG

in search of highly qualified expertise and lower costs. In his book "The World is Flat: A Brief History of the 21st Century," Thomas Friedman expresses a vision to "put every American man or woman on a campus."

There is great need for a talented and diverse workforce as we enter the 21st century. In order for the U.S. to maintain its competitive edge, there is a need to produce far more than the 76,000 engineers who graduate nationwide each year. One strategy for accomplishing this is to create a larger pool of qualified students who are well prepared academically and are mentally committed to the task of pursuing studies in the fields of interest. This would be accomplished if more students could learn to accept math and science as subjects that are within their reach.

Today, most of the students graduating from high school throughout the nation will readily admit that they were not significantly challenged by the work and were not usually required to work hard to make good grades. The issues encountered in the K-12 system include insufficient time commitment as most students seek to complete the minimal math requirements, low expectations, lack of student interest in science and mathematics, lack of learning incentives, and instructional modes leading to student disinterest. Primarily as a result of this, our high-school graduates do not compare very well with those of other developed nations in the areas of math and science performance.

Quite clearly a long-term strategy is needed to address current U.S. system deficiencies. Reforms are needed in curriculum, instruction, and the learning experience. It is evident that the problem must be addressed by systemic educational reform, designed to provide students with a more challenging curriculum, and placing emphasis on more rigorous academic standards. Our goal must be to bring all our students to a higher level of academic accomplishment that emphasizes the critical importance of math and science.

Changing Now

Throughout the nation, several entities are not waiting on the reforms referenced above, but have been moving ahead with a number of strategies focused on addressing the identified deficiencies in math and science preparation. Each year millions of dollars and person-hours have been assigned to the cause. While some have been effective, in most cases that effect has essentially been localized, primarily resulting from the fact that there is a significant gap between national ideals, as well as from local prejudices that exist in every school community across the country. Also, the various entities are not usually in communication with each other.

To achieve the desired goals, we must nurture the best qualities, talents, and perspectives of our K-12 students by stimulating their intellectual growth with positive and meaningful experiences, thus producing larger numbers of well equipped high-school graduates. We must focus more on teaching to the learning styles of our students in the classroom and providing real-world activities that demonstrate and reinforce the math and science concepts being taught.

WE MUST:

- Nurture the best talents, qualities, and perspectives of our K-12 students.
- Stimulate their intellectual growth with positive and meaningful experiences.
- Produce larger numbers of well-equipped high school graduates.
- Teach to the learning styles of our students in the classroom.
- Provide real-world activities that demonstrate and reinforce the math and science concepts being taught.

It is recognized that many of the students who are most likely to pursue careers in computational fields tend to be primarily kinesthetic learners, rather than auditory or visual learners. Thus, they find the current methods of classroom instructional delivery of math to be boring and lacking in connectivity. In fact most of the delivery tends to be abstract and geared to the auditory and visual learners.

Being the Leader

Individual Tau Beta Pi collegiate chapters are currently involved in various community-outreach activities in association with their universities. The Executive Council sees an opportunity for the Association to become more significantly involved in the national effort to increase the numbers of those equipped to pursue STEM degrees. With nearly 450,000 members and 232 chapters distributed in 16 alumnus-guided Districts across the nation, Tau Beta Pi occupies a unique position for impacting this problem. Tau Beta Pi members are highly talented individuals with the knowledge, skills, and abilities needed to successfully address this problem. As a first step in the process, we are gathering information from each chapter about K-12 activities in their chapter communities.

With so many activities being undertaken by various players in the K-12 system, our goal is not to reinvent the wheel. Rather, the Society's plan is to implement a math and science initiative that will leverage the best of what is currently being practiced throughout the nation. Existing K-12 programs will be evaluated and adopted where possible, and coalitions will be established with school districts, groups, and agencies already involved in K-12 programs. Tau Beta Pi will also develop and introduce additional activities consistent with the learning styles of students, thus enhancing the learning experience among K-12 students and assisting in producing better prepared students to meet the challenges of the 21st century.

The Tau Beta Pi National K-12 Math & Science Initiative will be developed by its constituencies, within a framework established with the ideas of all concerned. It will incorporate components related to teacher development, parent development, and student development and will include detailed assessment requirements. It will be data-driven and premised on the fact that fully equipped teachers and active and involved parents are critical to the success and progress of our K-12 students. Conversely, the research shows that where parents are apathetic and uninvolved, much of the hard work designed to improve student education will be non-productive. *(continued)*

Continuing the Mission

Our mission is to improve the math and science preparedness of K-12 students by connecting our chapters to their surrounding communities in a tangible and productive manner. With that accomplished, we will then be able to work toward the graduation of larger numbers of engineers. In the process, we must recognize that no successful country can afford to overlook the talents and potential of some of its people, including women, members of minority groups, and people with disabilities. With our global thinking and planned local perspectives, we will be better able to address the identified needs.

REFERENCES

[1]*www://tbp.org/pages/publications/BENTFeatures/Wo7Brown.pdf*

[2]*http://memp.pratt.duke.edu/downloads/duke_outsourcing_2005.pdf*

Dr. Earle is associate dean for student affairs in the college of engineering and associate professor of agricultural and biological engineering at the University of Florida and an Executive Councillor of TBP.

Welcome NY Υ & CA ΑΓ!

Two new chapters established by the 2006 Convention have been installed with the initiation of their charter members this year. New York Upsilon officially came into being on February 10, 2007, at the United States Military Academy in West Point, NY, with Councillor **Jason A. Huggins** as official installing officer. California Alpha Gamma at San Francisco State University officially joined the Society on March 10, 2007, with Vice President **Solange C. Dao** serving as installing officer.

This brings the number of active collegiate chapters to 232.

Educational Loan Fund

Since 1935, Tau Beta Pi has assisted student members with their financial needs while in school or with payment of their initiation fees through our Student Loan Fund. We are pleased to offer this service for student members in amounts up to $2,500 per member.

Repayment is required to begin after three years, and a simple interest rate of 6 percent is charged from the day the loan is received.

Interested students can obtain promissory notes and loan applications from their chapter president, the website, or the national Headquarters in Knoxville.

TBP Engineering Futures Program Receives Award for Excellence!

The Tau Beta Pi Engineering Futures Program has won the American Society of Engineering Education Corporate Member Council's (CMC) **2007 Excellence in Engineering Education Collaboration Award.** Tau Beta Pi President Dr. Larry A. Simonson, P.E., accepted the award at a luncheon held on February 7 during the group's conference for industry and education collaboration in Palm Springs, CA.

Letha Hammon, a manager at DuPont and chair of the CMC, cited the TBP EF program for its work in "developing critical interpersonal skill sets and leadership capability in our future engineering workforce … lifelong skills needed by the employees that the CMC member companies hire." In addition to her firm, the 88 corporate and non-academic institutional members of the CMC include several corporate sponsors of the Tau Beta Pi Convention (Avago, Boeing, Kaplan, NCEES, Northrop Grumman, and Raytheon) and other well-known firms, such as the Aerospace Corporation, Bechtel Corporation, Intel, Lockheed Martin, Merck, Microsoft, Rolls Royce, and Dow Chemical.

This recognition validates 18 years of effort by TBP facilitators and students. In each of the past three years, an average of 206 sessions were presented to 3,104 students.

BRING EF TO YOUR CAMPUS!

Bring the award-winning EF program to your campus. Contact Sherry King (sherry@tbp.org) today about hosting an EF session. Download a set of fliers to help promote the event at *www.tbp.org/Chapters/Resources/OtherResources/index.cfm*.

Special thanks to the members (shown) who posed for photographs at the 2006 Convention.

Above is a proposed design for a new poster. Tell us what you think of it.—john@tbp.org

Distinguished Alumnus
Nominations Are Being Accepted

The Distinguished Alumnus Award recognizes members who have demonstrated the ideals of Tau Beta Pi as stated in our Eligibility Code and who have fostered a spirit of liberal culture throughout their lives after their college years. Their personal qualities of excellence and leadership serve as examples so as to influence the professional careers and personal lives of our collegiate members.

Honored alumni have made exceptional efforts to demonstrate our ideals and to foster a spirit of liberal culture locally, nationally, and perhaps internationally. They have demonstrated integrity, breadth of interest, adaptability, and unselfish activity.

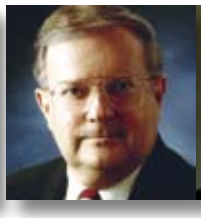
Awardees are chosen by a committee of national officers and invited to the Convention to be recognized. A $2,000 Tau Beta Pi Scholarship will be named in honor of each Distinguished Alumnus.

Any individual member or any chapter may nominate any alumnus member or members, except a national official, for the award. There is no limit on the number of nominations. The following documentation in four sets must be sent to the Executive Director by April 1:

1. A one-page nomination form of biographical information and a summary of the achievements and/or contributions of the nominee exemplifying the objective of the award. (*President's Book*, C 32-33.)
2. A citation (one-page limit) appropriate for presentation, documenting the nominee's outstanding adherence to the Tau Beta Pi ideal of fostering a spirit of liberal culture in our society. It may be written by the nominating party.
3. Two letters of reference from persons (excluding the nominator(s) or sponsoring chapter president) knowledgeable about the nominee's contributions and achievements.

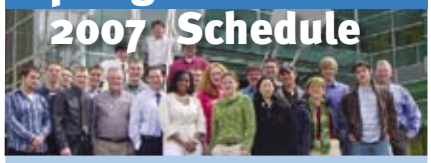
2005—H.V. Poor

2004—J.S. Tietjen



2003—D.D. Reneau and I.M. Jacobs

Spring Conferences
2007 Schedule



The District Program provides a vital link between the national organization and collegiate chapters. Each year Directors gather both retiring and new officers at regional conferences to provide opportunities to discuss chapter operations and to socialize. All chapters are urged to elect new officers before their District conference. All officers are encouraged to attend.

District	LOCATION	DATE
1	Durham, NH	Feb. 16-17
2	Rochester, NY	Feb. 17-18
3	Philadelphia, PA	Feb. 9-10
4	College Park, MD	March 31
5	Miami, FL	April 14
6	Nashville, TN	Feb. 23-24
7	Dearborn, MI	April 14
8	Milwaukee, WI	April 14
9	Lawrence, KS	March 2-3
10	Austin, TX	Feb. 9-10
11	Minneapolis, MN	March 31
12E	Colorado Springs	Feb. 24
12W	Pocatello, ID	March 3
13	Tucson, AZ	Feb. 24
14	Spokane, WA	April 14
15	San Francisco, CA	April 14
16	San Diego, CA	April 14

Seeking ΤΒΠ–McDonald Mentor Nominees

Marion and Capers (*North Carolina Gamma '74*) McDonald and the Association have established an award to celebrate excellence in mentoring and advising among Tau Beta Pi educators and engineers. The honor recognizes those who have consistently supported the personal and professional development of their students and colleagues through mentorship.

The TBΠ-McDonald Mentor will be chosen by a committee of national officials and will be presented a special medallion and a $2,000 cash award ($1,000 to honoree and $1,000 to the nominating chapter if nominated by a chapter—or to the honoree's chapter if nominated by a member). Only one award will be presented at any annual Convention.

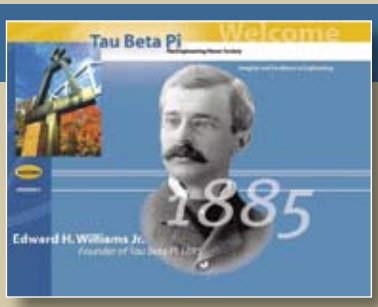
Any chapter or member may nominate one (or more) alumnus member(s) for the award. The following material in four sets is required to be sent to the Executive Director by April 1:

1) A one-page summary of achievements and/or contributions of the nominee exemplifying the objective of the award.

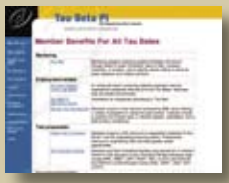
2) Two letters of reference from persons other than the nominating party or sponsoring chapter president who are familiar with the nominee's contributions and achievements, such as a dean or supervisor.

EXPLORE H.Q.'s MUST SEE WEB PAGES

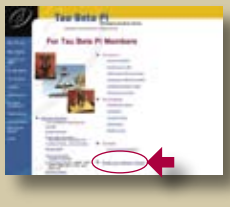
Whether you're a new member or a veteran chapter officer, check these helpful Tau Beta Pi web pages.



Tau Beta Pi home page
"Now it's more welcoming for the first-time visitor."
—John Innes
Log on: *www.tbp.org/pages*



Member Benefits For All Tau Bates page
"It may surprise you to learn how many benefits and useful discounts are available to members."—Pat McDaniel
Log on: *www.tbp.org/pages/ForMembers/Benefits.cfm*



"Email your address change" link
"Self explanatory! You'll find the link on the lower right-hand corner of the 'For Tau Beta Pi Members' page."—Trish Meyers
Log on: *www.tbp.org/pages/ForMembers/Index.cfm*

Subscribe to THE BENT page
"You can definitely save money by converting your initial four-year subscription to a Life Subscription right away."—Betty Harless
Log on: *www.tbp.org/pages/publications/subscriptions.cfm*

Tau Beta Pi District Director page
"You'll find photos of each Director, as well as their contact information."
—Ray Thompson
Log on: *www.tbp.org/pages/WhoWeAre/DD.cfm*

Chapter Website page
"This one page leads to nearly everything a chapter could want or need. It's indispensible for filing your reports."—Roger Hawks
Log on: *www.tbp.org/Chapters*

2007 Convention General Information page
"It has all the details you need for attending the next Convention."—Sherry King
Log on: *www.tbp.org/pages/convention/2007Convention/Generalinfo.cfm*

Tau Beta Pi Collegiate Chapters page
"You can find chapters by their associated schools, get their contact information, and link to their websites."—Jim Froula
Log on: *www.tbp.org/pages/WhoWeAre/CollegiateChapters.cfm*

Tau Beta Pi page
"You may bypass the home page by bookmarking this page in your web browser."
—Angie Winn
Log on: *www.tbp.org/pages/Main_Members.cfm*

Chapter Materials Order page
"The best place to order electee invitations, posters, honor cords, stoles, castings, and other necessary supplies...*without* a credit card."—Rebecca Davis
Log on: *www.tbp.org/Chapters/Resources/OtherResources/MaterialsOrder.cfm*

Coming online soon:
Tips on how and when to use all chapter materials

www.tbp.org/pages/

2007 Chapter Anniversaries

100th	**California Alpha**	April 10, 1907	University of California, Berkeley
	Iowa Alpha	December 20, 1907	Iowa State University
25th	**Michigan Iota**	January 16, 1982	University of Michigan-Dearborn
	California Tau	April 3, 1982	University of California, Irvine

THE ***Bulletin of***
Tau Beta Pi
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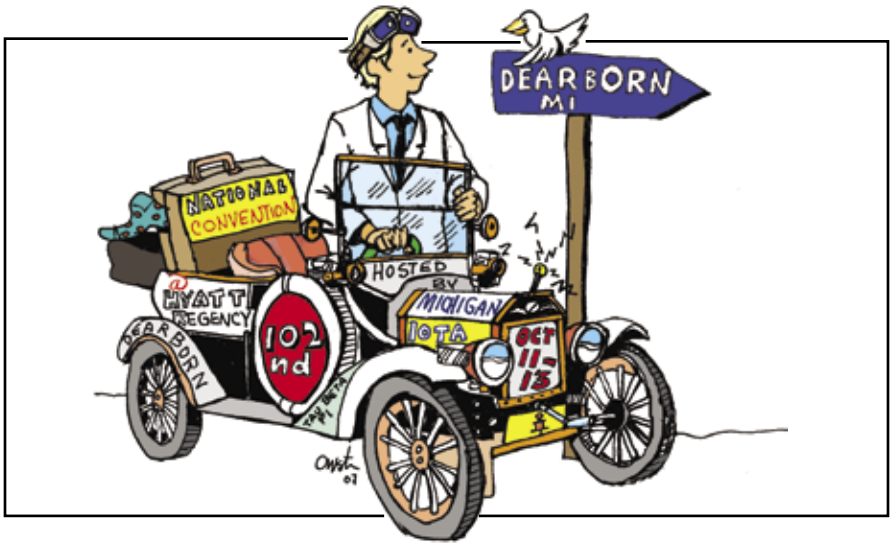
Important Deadlines

- **March 1** Scholarship Application
- **April 1** Outstanding Advisor, McDonald Mentor, Laureate, and Distinguished Alumnus Nominations
- **June 1** GIG Project Proposal
  Convention Bid for 2010
  Curriculum Appeal



THE ***Bulletin*** ***of*** **Tau Beta Pi**
(ISSN 8755-5670)

Vol. LXXX **March 2007** **No. 3**

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Special Benefits for Members

ΤΒΠ **members can access these benefits via** *www.tbp.org/pages/ForMembers*:

- **AlumNet**—online student/alumnus mentoring service.
- **Answer Financial**—find the best rates for many types of insurance.
- **Engineering Futures**—sessions on people skills for engineering students.
- **Fellowships/Scholarships/Laureate Awards**.
- **Kaplan**—30% discounts on FE/EIT & PE examination preparation materials.
- **MonsterTrak**—student-oriented job service.
- **My Home Benefits**—real-estate and moving services.
- **Princeton Review**—discounts for courses (GRE, GMAT, LSAT, MCAT, SAT, or ACT).
- **SunTrust Educational Loan Consolidation**—for members and families.
- **Student Loans**—for educational and initiation-fee assistance.
- **The Best People Job Connection**—browse jobs and post résumés.
- **Women for Hire**—job fairs and networking for women.