Excellence and Equity

As most of you know, I have been President of IMSA for only seven months, not yet a full year. I feel like I am beginning to get to know IMSA better and better each month, and what I am learning continues to excite me and encourages me to spread the word to others about this amazing place. That is why this issue is going out to hundreds of new readers for the first time, and I welcome the many new superintendents, educators, and friends who will hopefully learn more about IMSA, just as I have these past few months.

Some of our first-time readers will experience the same “dilemma” that I find myself in — trying to simultaneously learn about IMSA’s past, enjoy its present, and envision what its future could and should hold. As I learn about the past 30 years, I wonder what the next 30 years will bring. In fact, what would we like to place into a 25-50-year time capsule for people to open? What would they learn in 2050 about IMSA in 2015?

They would have to see some artifacts in the time capsule showing how IMSA has spent the past nearly 30 years growing its outreach network from zero to approximately 160 schools across the state, reaching hundreds of teachers and thousands of students a year, for a cumulative total of more than 20,000 teachers and 90,000 students since its inception!

They would have to see the names of the alumni who helped create Netscape, PayPal, YouTube, OkCupid, Yelp, discovered solar systems, became teachers and professors, doctors and scientists, and who are “advancing the human condition” in a myriad of ways. The names of the alumni, who have resided at our Aurora campus, would include approximately 5,500.

They would have to see renderings of the IN2 Steve and Jamie Chen Center for Innovation & Inquiry, the new innovation hub currently being built on campus, which combines students’ love of inquiry with social responsibility in partnership with social entrepreneurs, the local business community, and beyond.

They would have to see the awards, honors, acclaim, and tributes, the winners of speech, mathematics, science, music, swimming, art, history, language, finance, and many more competitions. They would see evidence of year-long research projects done on- and off-campus under the guidance of staff, university and corporate mentors, and then presented in oral presentations to peers, parents, and the public.

They would see what I see every day, what you should see, and what we should try to make everyone help us see in the future — a learning laboratory focused on igniting and nurturing creative, ethical, scientific minds that advance the human condition!
All of these buzzwords and catchphrases have been hovering over the announcement of IN2, IMSA’s upcoming $1.9 million innovation center, like the quadcopters that adorn our Energy Center. What do they really mean, though, and how can these concepts lead to students being more prepared for the fast-paced, ever-changing world of entrepreneurism and technology?

To many IMSA students, the technology lauded in news pieces isn’t mystical jargon; they are real tools that students use in developing their novel ideas and products. The Innovation Department holds open maker hours three times per week, where students, faculty, and staff can come in to the Energy Center (and later IN2) and use tools such as 3D printers, scanners, and pens to work on whatever they choose. On a typical afternoon, the student Maker Squad was busy assisting their peers with CAD (Computer-Aided Design) and subsequently helping them 3D print both tchotchkes, like their names embedded in plastic, as well as necessary parts, such as modifications to a custom designed and built glider that chases away the geese that plague our campus (part of the “Goose-Busterz” project).

The blurred relationship between work and play are part and parcel of the learning experience. Senior Rodrigo Sanchez, one of the students taking advantage of open maker hours, was working on a CAD project both for fun and to better learn the software. “Having fun projects to work on knocks down the barriers to get people interested in this technology,” Rodrigo said. Junior Arianna Osar, who came to the coworking space just to talk, envisions IN2 as a social space that will enhance the kind of interactions she was looking for when she stopped in. “An innovation center like IN2 would ideally be a place we can go to bounce ideas off each other, somewhere students, classes, and clubs can go to use equipment, but also somewhere we can just do homework or talk with no external obligations,” Arianna said. “Innovation can’t really be taught or forced anyway - it’s much more of a sporadic and random process.”

So where do educators fit in to this equation? Leaving students to their own devices isn’t a viable education method, but traditional, rote pedagogy can slow the development of students and their ideas.

“In IMSA’s TALENT (Total Applied Learning for ENTrepreneurs) program we act as coaches, getting to know each student and personalizing their education by connecting them with our team of entrepreneurs, who mentor these students” says TALENT Program Director Carl Heine, who wrote a chapter about gifted innovation education in the Handbook of Secondary Gifted Education (2nd ed.)
with fellow IMSA Staff Members Jim Gerry and Laurie Sutherland.

Carl’s chapter lists key program components for educating technologically talented students, which include employing nonhierarchical structures to facilitate learner participation, assessing performance based on what students create and learn rather than typical testing, and edicts such as “ideas for projects must come from students.” Many of these ideas are obvious just from observing programs such as open maker hours and Power Pitch, a Shark Tank-style competition for $6,000 in startup funding for original student business ideas, doled out by leading Chicago-area entrepreneurs.

Carl argues that the coach approach to bringing in outside experts that teach students about their field is not just a helpful addition to the curriculum, but an integral part of guiding students through this study. “The field of entrepreneurism is fluid, with the technology, social factors, and public policy surrounding it always evolving, and so experts who interact full-time within the tech world are necessary to keep our students’ entrepreneurial efforts grounded in the real, current world of technological innovation.”

Perhaps the mixture between self-directed learning and expert mentorship works especially well at IMSA, where students have constant access to experts in traditional STEM subjects; not every hopeful entrepreneur can count on taking engineering classes in high school, or living with a community of advanced math and science learners. However, students and staff alike identified one key to this educational approach that is unique for the Academy: embracing failure.

“We tell our students, if you don’t fail, you aren’t trying very hard,” Carl remarked. “We’re not shooting for failure, but we need to impart that students can’t be afraid to try things out, and when they run into a wall, face that obstacle or move on to another idea.”

Chief Innovation Officer Britta McKenna also spoke about how crucial it is to fail, using IMSA’s 3D pens as an example. “We featured 3D pens in our maker space and students had a great time experimenting with them, until every one of them broke. And that’s where the real learning began. Our Maker Squad students collaborated to problem solve, took them apart, identified the problems, and put them back together, figuring out how they work in the process, as well as what rules they’ll put into place in the future to avoid the same problems.”

Students agree that an accepting space is a more powerful collaboration tool than any piece of technology one can purchase. “I think that the entire basis of fostering innovation is setting up an environment without barriers, where failure is not perceived as being a bad thing,” says sophomore and Maker Squad Leader Zach Ungerleider. “In some of the most advanced maker spaces, 3D technology is already considered old news. The most important thing for IN2 to be successful is if the environment is one where students push each other to succeed, without having to worry about limiting outside factors like grades, peer pressure, and negativity.”

When asked about the potential difficulty of setting up a pressure and judgment-free atmosphere within a high school, of all places, Zach smiles — he’s not afraid of a challenge.

The Maker Squad Students Break Down Innovation Lingo

- **Maker Squad** — A technologically well-versed group (students, in the case of IN2) that assist aspiring innovators in using tools in a maker space.
- **Maker Space** — An area that contains different technology used to take an idea to the building and prototyping phase.
- **Media Wall** — A large bank of televisions that will present media such as current events, the weather, a calendar, and more.
- **Innovation Ecosystem** — The network of all the different co-working spaces, innovation hubs, college laboratories, and other places that promote innovation. IN2 hopes to become a partner in this ecosystem.
- **Idea Bar** — A physical space to grow ideas, network with others, and generate new ideas.
- **Entrepreneur-In-Residence (EIR)** — A space or an expert that inhabits that space who has knowledge to share with the students of IN2 — for example, a financial expert, a marketing expert, etc.
- **Rapid Prototyping** — An aspect of entrepreneurship that involves making a physical version of one’s product over and over with the intent of finding mistakes and fixing them.
Time Capsule: A container storing a selection of objects chosen as being typical of the present time, buried for discovery in the future.

Time capsules are exciting projects to put together and they make us think about the distant future. At IMSA we are inclined to go at least one step further with any concept and innovate and explore it beyond its current definition, then implement our own version — a version that serves us better, and more uniquely. That’s just what we did with the time capsule concept. We have altered it to assist us in planning a remarkable future for the next 25 - 50 years by making IMSA’s time capsule one that is open and virtual. We are imagining who we should become in the short- and long-term, and you helped by responding to our recent survey.

Dr. Torres spoke of how we must imagine IMSA’s future in his December 15th Reflections piece, “As an educational community, IMSA’s work in creating the conditions and organizational culture that celebrates hard work, development and resilience will support growth and vitality—a growth mindset—which differs significantly from a fixed mindset, one that assumes innate talents, abilities and intelligence are fixed. Our growth mindset view fosters a love of learning and a resilience that is needed for talent development and accomplishments.”

With Dr. Torres’s new growth perspective and collaborative style, it was a perfect moment to engage the IMSA community’s limitless expertise and ask all of you to take a long view of IMSA and imagine our future for the next 25 - 50 years. Your response was overwhelming, passionate, and incredibly insightful, as we expected. Responses covered every aspect of IMSA from facilities to curriculum development, diversity, fiscal, and student issues.

So what do we put in our virtual, open time capsule now to create an even more vibrant and recognized STEM Academy?
IMSA’s Virtual Time Capsule

We’ve consolidated more than 200 survey responses into the most consistently mentioned opportunities for growth and improvement and coupled them with the broad outcomes IMSA leadership and staff developed from a recent leadership retreat and community day.

CURRICULUM DEVELOPMENT
Outcomes: Increase STEM Innovation and Persistence/Increase Civic Engagement/Develop STEM Educator Proficiency

- Find focus and balance with curriculum; be innovative, challenging, and engaging
- Develop engineering, computer science, technology, economics, and geology classes
- Provide more independent study, scientific inquiry, and mentorship opportunities
- Increase ethics and leadership training, include politics and citizenship, instill community
- Develop a sex education course
- Expand the learning laboratory
- Increase STEM outreach to the State of Illinois

THOUGHT LEADERSHIP
Outcome: Learn and Disseminate Leading STEM Best Practices

- Become recognized nationally by generating solutions for gifted education and publish results
- Create competitive advantages to attending IMSA
- Reduce emphasis on grades; more emphasis on actual learning
- Engage students enough to stay on campus and collaborate, create a more cohesive community
- Cultivate relationships with external teachers and counselors to attract the brightest students
- Develop closer relationships between students and staff

FISCAL
Outcome: Strengthen IMSA’s Organizational Capacity

- Make it clear to the state that what IMSA provides is invaluable
- Build more partnerships with corporations, universities, and research laboratories
- Create significant, independent funding sources
- Ensure a tight, long-lasting relationship with alumni and encourage them to donate
- Connect students with alumni for mentorship and fiscal responsibility toward IMSA

DIVERSITY
Outcome: Strengthen IMSA’s Organizational Capacity

- Diversify the ethnic make-up of students and staff
- Strengthen IMSA community’s understanding of LGBT issues through increased education

FACILITIES
Outcome: Strengthen IMSA’s Organizational Capacity

- Upgrade classrooms and all facilities or rebuild IMSA
- Paint facilities
- Add fast Internet and the latest tools and equipment

BRAND AWARENESS & DIFFERENTIATION
Outcome: Increase IMSA’s Brand Presence and Awareness

- Differentiate IMSA even more
- Increase inquiry, independent study, and mentorship which are key to awareness of IMSA
- Increase media exposure

POLICIES
Outcome: Increase IMSA’s Organizational Capacity

- Reduce restrictions on residential life
- Trust students to be responsible and learn independence
- Reduce student stress
- Focus on student mental health

IMSA’s time capsule for imagining our future is virtual, not physical, and we will reshape ourselves now to create a future for our students and the whole IMSA community that will allow us to thrive and grow in the present and for decades to come. IMSA will be an open time capsule, changing and improving continuously, not one created and stored in a vacuum.

While IMSA has budget and other real-world challenges ahead, institutional priorities are being finalized, and soon we will be on a path to shape our future head-on and with intensity. We look forward to working with you and all of our community members to achieve our desired outcomes.

Have your own suggestions on how IMSA should shape its future? Join the discussion at https://sites.imsa.edu/imsa360/
It is regularly said that the Illinois Mathematics and Science Academy’s alumni are privileged to have attended IMSA. I would like to say that IMSA is also very fortunate to have us as alumni! This vigorous group of men and women recognize that they are each valuable members of an extraordinary community for a lifetime. The Board of Trustees, President Torres, senior administrators, the faculty, and the students of IMSA depend on us. Our commitment to IMSA is a solemn bond.

The 19 members of the IMSA Alumni Association Cabinet represent to our fellow Titans the interests and wishes of more than 5,000 alumni. To accomplish this important task, Cabinet members depend on a fully informed and engaged alumni community. Your participation and engagement with IMSA after you graduate is very vital. Your recommendations, your ideas, your contributions and responsibility to IMSA do not stop when you graduate — they are what keep IMSA pulsating, prestigious and relevant to the times and what makes your diploma that much more esteemed.

I urge you to take full advantage of what the IMSA Alumni Association offers: career networking, social events, reunions and more. Use the Alumni Association as a portal through which you stay connected to this vast network of Titan relationships. Explore the IMSA Alumni Association website at www.imsaalumni.org to discover ways to be involved with IMSA.

Thank you again for allowing me the opportunity to serve as your IMSA Alumni Association President.

Sincerely,

Melvin Bacani ‘90
IMSA Alumni Association President

The Weekend for Alumni to Come Home

Welcome to Alumni Weekend 2015! Dedicate a weekend and a lifetime of friendships at Alumni Weekend, which will take place this year from July 17-19. Join your friends, teachers and classmates. We look forward to welcoming you to campus for this year’s events. Registration opens online in May at www.imsaalumni.org.

NEW! FRIDAY ALL CLASSES EVENT
Kickoff your Alumni Weekend celebration with a new Friday night event hosted by the IMSA Alumni Association. All registered alumni and their guests are invited to reconnect with old peers, new friends, “Honorary Alumni,” retired faculty, and staff. Check the Alumni Weekend 2015 website for newly added information — this is an event you don’t want to miss.

SCHEDULE

Friday, July 17th
All Classes Event

Saturday, July 18th
Alumni Day and Class Reunions for the Classes of ’90, ’95, ’00, ’05 and ’10.

Sunday, July 19th
All Classes Farewell Brunch
AMY MINSTER ’93, after teaching and tutoring for the Princeton Review for years, Amy recently accepted a position as one of two people responsible for all of the company's new math content for the redesigned SAT. With the awesome official job title of Math Uber, Amy has led a team of authors to write more than 700 new math questions, and she wrote the math section of the new manual.

KRISTEN OSENGA (JAKOBSEN) ’90, a Professor of Law at the University of Richmond School of Law, was recently named a non-resident Senior Scholar at the Center for the Protection of Intellectual Property, located at George Mason University School of Law.

MICHAEL KIMMITT ’94, is opening a bicycle shop in north San Diego County that will focus on bicycles as practical utility and transportation for individuals and families that want to enjoy the physical, personal, and financial freedom they can offer.

MITCHELL S. RILY ’94, became Director of Human Resources for Loot Crate, helping to provide geek and gaming gear to the 100,000+ subscribers of the company.

ELIZABETH R. KARNIK (ORDZOWIALY) ’95, and her husband welcomed Piper Christine Karnik to the world on December 3, 2014. Piper joins big sister Kayley and big brother Ben.

KOMAL BAJAJ ’96, is working as a Reproductive Geneticist and Simulation Educator in New York City. She and her husband Vikas are happy to announce the addition of boy-girl twins to their family.

KRISTEN OSENG (INDIA) ’07 received two leadership awards from medical school this year. The first was the Walter Zeit Leadership Award, given to a graduating senior in recognition of selfless service to the Medical College of Wisconsin and its students. The second was the TEMPO Milwaukee Scholarship, awarded to one female student with outstanding leadership qualities as defined by her extra-curricular activities. Lara will graduate from the Medical College of Wisconsin in May and plans to pursue a career in anesthesiology.

CLIFF ’92 and JEN SODERGREN welcomed their first child, Elizabeth Lorene, on June 9, 2014. She is doing well and the parents occasionally sleep.

KATRINA HERRMANN ’01, is a stage manager in theater and will be working this summer on the Off Broadway remounting of the Pulitzer Prize-winning “The Flick” by Annie Baker in New York.

BRIAN LINK ’03, is getting married to Lana this fall and recently was second chair at a two-day federal bankruptcy trial, where he successfully defended a $2.5 million fraudulent transfer action. He also has a second publication coming out in the California Bankruptcy Journal this year.

DEREK WOLFGRAM ’89 started a new job as Director of the Redwood City, CA Public Library this fall.

LARA ROSEWICZ (INDIA) ’07, will be biking across the country this summer as part of Illini 4000, a non-profit organization dedicated to fighting cancer.

MICHAEL DAMIAN THOMAS ’92 is the co-publisher and co-editor-in-chief of Uncanny Magazine, an online science fiction and fantasy magazine that features stories and poems from award-winning and bestselling authors, as well as covering geek culture in general.

DEREK WOLFGRAM ’89 started a new job as Director of the Redwood City, CA Public Library this fall.

What’s new in your life? Submit your class notes at imsaalumni.org/notes
Businesses struggle to find STEM leaders among America’s students. **IMSA answers the call.**

The newly created STEM Business Network will forge a partnership between IMSA and a network of businesses that support and collaborate with the Academy in order to invest in STEM education, talent, and opportunities throughout Illinois. Supporting STEM education initiatives and investing in a workforce that is interested and talented in STEM fields will help fill this critical gap in our state.

Any business, entrepreneur, or philanthropist interested in supporting STEM education for his or her own future workforce can become a member. Additional membership benefits include the following:

- Access to network with IMSA’s talented pool of alumni and students to recruit for internships, job postings, career days, and more
- Participation in corporate engagement and volunteer opportunities
- Attendance at the annual networking event with members, legislators, and IMSA alumni and students

IMSA is launching the STEM Business Network at its first event on April 22, and businesses such as ComEd, Chase, and BP America have already signed on as members. Talk to your employer about joining the STEM Business Network. Applying is easy — contact Julie Christman, Corporate and Foundations Relations Manager, by calling (630) 907-5063 or emailing jchristman@imsa.edu.

**Sources:** Change the Equation Survey 2014, ACTstudent.org, Illinois Mathematics and Science Academy Quick Facts, 2014, and National Center for Education Statistics
FIVE STUDENTS EARN ‘OUTSTANDING ACHIEVEMENT AT THE NATIONAL LEVEL IN SCIENTIFIC RESEARCH AND LEADERSHIP’ HONORS

Seniors Omair Khan, Sanjay Kottapalli, Grace Duan, Sameeksha Malhotra, and Ranjani Sundar received Lifetime Fellowship and Full Honors for “Outstanding Achievement at the National Level in Scientific Research and Leadership” from the American Academy of Science (AAS). The five students had their original research recognized at the 2015 AAS Annual Meeting in San Jose, CA.

BOTH OF ILLINOIS’ SIEMENS COMPETITION REGIONAL FINALISTS FROM IMSA

Siblings Janani and Pranav Sivakumar, in researching dark energy and dark matter, were named Illinois’ only Regional Finalists in the 2014 Siemens Competition in Math, Science & Technology. The Tower Lakes duo were two of less than one hundred Regional Finalists in the nationwide competition, selected from more than 4,500 entrants, and they received $1,000 in college scholarships. IMSA was also heavily represented at the Semifinalist level, with five of Illinois’ twelve students hailing from the Academy.

TUSKEGEE AIRMEN INSPIRE STUDENTS AND STAFF

Three Tuskegee Airmen visited IMSA and spoke on Tuesday, February 3rd. Hollis Cornelius, Julian Johnson, and Milt Williams spoke and fielded questions in IMSA’s auditorium, sharing their experiences, hardships, and triumphs in breaking the color barrier for pilots in a racially divided society.

IMSA TEAM RECEIVES HIGHEST RANKING IN WORLD MATH COMPETITION

A team of IMSA students was named an Outstanding Finalist, the highest ranking possible, in the High School Mathematical Contest in Modeling (HiMCM) worldwide math competition. Out of 671 teams IMSA finished among the top 9, which marked the 9th time in the last 10 years that an IMSA team has achieved the highest possible ranking.

IMSA PRESIDENT, FACULTY SHOW LEADERSHIP IN NATIONAL EDUCATION

Faculty and staff contributed a great deal of scholarship this fall, penning two chapters of the National Association for Gifted Children’s Handbook of Secondary Gifted Education (2nd ed.), three articles in publications of the Illinois Association of Gifted Children, and many more papers, presentations, and speeches. Dr. Torres presented for the Jack Kent Cooke Foundation, was named among Fox Valley residents who “Made Their Mark in 2014,” and was interviewed for an article about lessons learned in educational leadership, written by the Institute for Educational Leadership in the Huffington Post.
Save The Date
FOR THE FOLLOWING IMSA EVENTS

IMSAloquium
April 30, 2015

IMSA Class of 2015 Commencement
May 30, 2015

Alumni Weekend
July 17-19, 2015
Includes reunions for the Classes of 1990, 1995, 2000, 2005, and 2010. To join a reunion planning committee, contact myimsa@imsa.edu. For information on IAA events, visit www.imsaalumni.org.

IMSA360 Goes Green
Help the IMSA360 magazine go green! If we have your current email address, you will now receive the magazine digitally, with bonus online content, news, and features as soon as they’re published. If you’d still like IMSA360 mailed to you in print form, or need to update your contact information, please visit www.imsaalumni.org/360.

For more content and important updates, find us online at www.imsa.edu