



The **SEED** Effect:
How one educational program impacts its students



Toss a pebble into a quiet pond. The pebble enters the water with a plop, creating a circular wave. The pebble sinks to the bottom but its entry point is marked by spreading circles. The water moves gently as the concentric ripples spread farther and farther away from the center. The entire surface of the pond is now in motion.

SEED spreads a passion for science and education in the same way. Teachers are the pebbles, spreading the SEED philosophy among their students. The students remain with their teacher for a short time and then, like ripples on a pond, move on and out to live the rest of their lives. But what happens next? How does the experience affect the student in the long run? What is the SEED Effect?

One way to find out is to ask students. After a 2011 workshop in Macaé, Brazil, where students learned about living systems and the environment, a 9th grader told teacher Silviene Florentino that he wanted to be an environmental engineer. “The students that have been involved with SEED have become more mature and participatory in class,” Florentino says. “This is very significant for us,” she adds, “since our students come from many different backgrounds, with limited resources for further education.”

A student may get inspired in the moment, but what happens in a year, two years, five years? Do former SEED students pursue careers in engineering? What about students who do not want to be engineers or other scientists? What happens to them?

SEED examined the lives of former students. The exposure to the science, technology, engineering, and mathematics (STEM) curriculum of SEED and its workshops has inspired some of the earliest students from our program to become engineers or scientists. Others are still in college and have not yet chosen a profession. There are artists, doctors, environmentalists, accountants, and even a musician. Some former students were given opportunities to travel or had exposure to the world beyond their home country.

What do all of these different students have in common? Did they learn some of the same skills? How did SEED make a difference? Let’s explore the SEED Effect to find out . . .





Ezekiel Boro: “My Possibilities Are Boundless”

How many medical students make the time to return to their secondary schools to support the next generation? Nigeria's Ezekiel Boro has done just that by going back to his secondary school, Igbobi College, in the Lagos suburb of Yaba, to bring science, technology, engineering, and math (STEM) programs to more students at his alma mater. Even while attending the College of Medicine at the University of Lagos, he feels it is important “to reach out to schools and students, to help them with the necessary tools for better learning.”

Ezekiel was 14 years old in 2006 when SEED granted his school a computer lab. “Until we got that computer lab, I thought the Internet was meant for fun and games,” he admits. The computers came with an online encyclopedia, and the Igbobi students realized a world of information was now available at their fingertips. “I was privileged to be part of the group that benefited from the information technology center that SEED provided.”

One of the most significant school activities for Ezekiel and his classmates was debating competitions. Access to the Internet in the SEED computer lab proved essential. “We would go online to search for counterpoints to use against our opponents and to find answers to a range of questions we might get.” One debate competition included a topic on greenhouse gases and their effects on global warming. “By going to the SEED

computer lab, we found tons of information we could use,” he explains. “We watched animations on how certain gases deplete the ozone layer and how all this was causing major environmental changes. That information had quite an impact on me.”

Ezekiel also credits SEED with teaching him about teamwork. “Working with older students at school and some of my classmates, we learned to share ideas on those debate topics. There were some synergies which helped us achieve greater results at the debates.”

Now, Ezekiel's younger brothers have followed in his footsteps at Igbobi. Joseph is in his second year of the secondary school and in August 2012 attended SEED's collaborative workshop in Port Harcourt. Emmanuel is in his third year at the junior secondary school and is increasingly interested in SEED activities, Ezekiel says.

A seed takes root

For Ezekiel, the best part of SEED is reaching out, whether through the Internet or in person to students. “It doesn't matter if you're a student in India or Indonesia, Azerbaijan or Argentina, SEED reaches out far and wide. I'd love for SEED to keep reaching out to as many schools and students as possible. Let's all go out and change our world with the educational benefits of science.”

Name: **Ezekiel Boro**
School: **Igbobi College, Yaba, Lagos, Nigeria**
Years attended: **2001-2007**
First exposure to SEED: **2005**
Post-SEED: **University of Lagos, studying medicine**

Ezekiel remains inspired to help other students. “I want to continue to impart the knowledge and skills I have acquired over the years to other students, through workshop trainings and experiments.” He has done some of that with SEED, for instance, in a June 2011 visit to Igbobi to assist with a workshop that featured two SEEDKIT experiments. “I explained what viscosity is and then helped lead the experiments,” Ezekiel offers. The whole day was fun, and the experience made him want to return for more.

Beyond SEED, Ezekiel has taken the spirit of reaching out to heart, with his own youth initiative called PIVOT. “In 2008, a couple of friends and I started this youth forum and symposium targeted at students in their final year of secondary school,” he explains. “PIVOT stands for Purpose, Inspiration, Values, Orientation, and Transformation.” Ezekiel and his friends noticed that many secondary school students were unprepared for life after school. “It’s a whole new world for most of these students, who face challenging decisions and are vulnerable to all kinds of pressures.” These include career choice, peer pressure, drugs, sex, poverty, physical maturity, relationships, family, parenting, and superstitions.

“We saw too many people make the wrong choices in life,” he notes, “so to the best of our abilities we try to prepare the students for the real life that’s out there beyond the four walls of

school.” To do this, PIVOT invites speakers to help prepare students for the wider world they will soon face.

“This year, we wanted to do something different,” Ezekiel says, “so we decided to introduce a mentorship program called The Greatness League.” The idea is to spur innovative thinking among the schools that are part of PIVOT by introducing a competition to reward creative thinking.

According to Ezekiel and his friends, much of the Nigerian educational system is oriented toward training secondary school students to study and pass exams. There are few opportunities for students to apply all the knowledge gained from learning in a practical way. “Yes, there are science experiments and practical sessions at school,” he declares, “but more often than not most of these experiments are geared toward passing examinations.”

Ezekiel admires SEED’s activities because they promote creative thinking and application of what is learned. “The SEED workshops and programs are life-changing experiences for most of the students. They are given an opportunity to apply all the knowledge they have acquired in a practical way through hands-on projects and experiments. Through this medium they can generate solutions to problems. Innovation comes from simple solutions to complex problems.



Ezekiel demonstrates SEEDKITS to current students at Igbobi College.

PIVOT’s mentorship program is just the start of the group’s plans. Ezekiel says that financial constraints are holding back other projects. “In this part of the world, it’s a bit hard to get people to support your ideas and dreams, especially when you’re just starting out,” he notes, “but we’re not going to stop dreaming.” Outside of school PIVOT is what Ezekiel is most passionate about, and he looks forward to a time when he can work again with SEED.

Living with passion

“Since I left Igbobi College, I’ve had this passion for helping younger people lead better and more productive lives as future leaders through training and teaching,” Ezekiel says. “I learned to reach out with all that I have. My capabilities may seem small, my achievements may seem limited, but my possibilities are boundless. If I channel all my energy into delivering the little gifts I possess, then I have the potential to change the world.”



Name: **Hafiz Azizi (Muhammad Hafiz Azizi Bin Ahmad)**

School: **SMK Geliga, Kemaman District, Malaysia**

Years attended: **2004-2008**

First exposure to SEED: **2005**

Post-SEED: **Universiti Teknologi MARA, studying business administration**



Hafiz Azizi: “We All Deserve to Learn”

Hafiz Azizi was a shy student at SMK Geliga when he joined SEED at age 14. His SEED experience helped to transform the shy boy into a confident public speaker. His first activity was Malaysia’s National SEED Workshop (held in Nilai, Negeri Sembilan) in 2005. Hafiz recalls, “I went with three of my schoolmates and a teacher. I was in a state of cultural shock because where I come from, there are not a lot of students who can speak English fluently.” He notes that this was his first time in a hotel, and with a smile he adds, “The beautiful hotel and great food were life-changing for a 14-year-old!”

The workshop opened Hafiz’ eyes to a different way of learning. “At the school that I attended, the teachers gave us everything,” he recalls, “the notes, the solution, whatever was required. And there was a barrier between students and teachers. Students could not express their opinions.” The SEED workshop was conducted differently. “Everyone was a student and everyone was a teacher,” he says, which brought out the talents, ideas, and opinions of everyone.

Back at SMK Geliga, Hafiz and his schoolmates in the SEED club began to use the GoGo Board (a small computer that can be employed to create robots) and the MicroWorlds animation program. “We tried to inspire other students to learn science in a creative way,” he says. Hafiz was such an enthusiastic participant that he became president of the club a year after his first workshop.

Hafiz attended eight workshops as a student. These workshops focused on topics such as energy efficiency and global warming. “My favorite projects were the solar cooker, the pot-in-pot refrigerator, and water testing,” he states. These activities allowed him to relate to students from different parts of Malaysia. “I live in a fishing village,” Hafiz explains, “and most of the students here only learn science in school, using a textbook. They don’t try experiments that use everyday materials to create a science project.” Soon, Hafiz became a workshop facilitator, helping lead four of these events while still a secondary school student. “We even did a presentation about SEED to the minister of education in 2007.”

Hafiz is now studying finance at Malaysia’s Universiti Teknologi MARA. He expects to graduate soon. “My SEED experience influenced me to be more aware of what is going on in the world around us and to find ways to make it better.”



Skills gained

The impact SEED had on Hafiz can be measured in various ways. He learned specific skills, like how to build a solar cooker, how to program a smart circuit, how to create computer animations, and how water quality is tested. That sounds like a lot, but it is really just scratching the surface. Many of the skills Hafiz gained are not so easy to categorize or define. He began to see science class in a whole new light, noting, “There are a lot of creative and interesting ways that we can learn by looking at the world around us.”

Hafiz added skills he will take into the professional arena after completing his education. “The most important thing I learned is how to be a great public speaker,” he asserts. In college he made numerous presentations to the other students and even created one about global warming and climate change for faculty members. He credits his SEED experience with giving him “the confidence to be able to deliver presentations, speak in public, and share my ideas and opinions with other people.”

Hafiz’ experience as a facilitator for SEED workshops has taught Hafiz to “be more outspoken, to get to know people, to change ideas and opinions, and share my new-found knowledge to help others. Since then, I have worked with professors, scientists, and engineers who treated me more like a peer than a student.”

Spreading the seeds

Hafiz remains an enthusiastic and engaged supporter of the program. “I voluntarily give presentations on global warming and climate change in SEED-connected and -affiliated schools because I’m compelled to inform other people about the problems we are facing,” he says. “I also volunteer in a number of organizations such as Earthwatch, to promote awareness of environmental issues.”

When he can, Hafiz assists the Malaysia coordinators with their educational programs, such as workshop arrangements and school visits. He continues to be a facilitator for workshops, for example, at Kuantan, Pahang, in the month of July 2011 and at the Malaysia SEED National Workshop 2011 in Kuala Lumpur in December of that year. Hafiz remains in touch with his secondary school, checking up on the SEED club and coming in to share his knowledge. “I love to see the students and other participants doing their presentations and sharing ideas.”

“I am and will always be interested in supporting SEED,” Hafiz states. “I would love to facilitate workshops and go to SEED-connected schools around the world. I would love to give presentations and teach them SEEDKIT activities. Above all, I would love to set an example for them, that no matter where you are, science, math, and technology are for everybody to learn and enjoy.”



Hafiz explains how the solar cooker works to students at Quirino High School in the Philippines.

Share ideas and opinions

Hafiz advises current SEED students to participate in as many workshops as possible and to take advantage of the great resources provided by the program. “There are no boundaries in learning science, and there are many interesting ways to learn it. Take the chance at a workshop to share ideas and opinions that you have for the world to know; you can help other students gain knowledge through sharing ideas.”

Hafiz sums up his SEED experience this way: “The best aspect of SEED is that it doesn’t matter where you come from, the village, the city, or whatever. We all deserve to learn and to gain knowledge by sharing ideas and opinions with other people from around the globe.”



Maxim Chizhikov: “Exchange Ideas Generously”

When Maxim Chizhikov was in 5th grade, his parents placed him in an after-school program in science to encourage a new interest in their artistic son. Little did his parents know that they were setting Maxim on a new path, one that would become his mission in life. The program, called the Young Technicians’ Center, is one of the earliest institutions to receive a SEED connectivity grant for computers and Internet service. It was there that Maxim would find a mentor in the Center’s program leader, Nataliya Varankina, and an intersection of all his interests.

Maxim was immediately taken with the SEED activities, which use robotics, GoGo Boards, and other computer tools to explore environmental issues. The Young Technicians’ Center program is intense, and the students work after school and on Sundays as well. Maxim contributed to both the science work and to the appearance of the projects with his artistic talents, and soon he was known as an outstanding member of the program—a star, so to speak.

Mrs. Varankina noted Maxim’s enthusiasm and brought him to his first SEED workshop in 2007, in Novosibirsk. It was a great experience. “I loved bringing back knowledge, and I loved the idea of kids bringing knowledge to other kids,” Maxim exclaims.

Maxim grew more involved with SEED. He was selected as his school’s representative at the 2008 Science and Technology Creative Youth Forum in Moscow, a major exhibition for students. As part of the event he spoke about the water-testing kit. “I now consider myself somewhat of an expert on water testing,” he notes with a smile.

Maxim attended two more workshops, at Irkutsk in 2008 and Krasnoyarsk in 2009. He was one of the organizers at Krasnoyarsk, handling safety and logistics for the other students on the field trips, for example. Maxim had other responsibilities as well: He acted as liaison between Russia’s SEED coordinator and the students, and he was the emcee for the workshop, making announcements and running various official events.

Now at university, Maxim studies social policy and international studies at the North-West Academy of Public Administration in St. Petersburg. But he wonders if he might have chosen to become an engineer or other type of scientist if SEED had been at his secondary school, rather than at an after-school program. “Maybe my path would be different,” he muses. Environmental policy classes are part of his compulsory curriculum and he excels in them. He attributes his interest in environmental issues to his experience with SEED. “There are many people in my generation that are not concerned about the environment, but the future of the Earth is very important to us,” he says, “and truly we are all interested in a good future for the world.”

Name: **Maxim Chizhikov**

School: **Young Technicians’ Center (after-school program),
Noyabrsk, Russia**

Years attended: **2005-2010**

First exposure to SEED: **2005**

Post-SEED: **North-West Academy of Public Administration in
St. Petersburg, studying social policy and international studies**

Experience leads to confidence

“There are some skills I learned from my experience with SEED but that have nothing to do with science,” Maxim says. From the workshops he picked up organization skills, which he put to good use in 2011, when he coordinated the St. Petersburg Dance Festival. “I booked the dance groups, paid suppliers, and scheduled events,” he explains. “I learned I could do things on my own in SEED, so for the festival I was prepared to take the initiative. I was confident because I had this experience from SEED,” he states. “Mrs. Varankina and the SEED program treated me as an equal. I was treated as an adult, and so I am prepared to be an adult.” Maxim remains in contact with Mrs. Varankina.

Maxim also learned to be a good public speaker, to speak intelligently, and to communicate his message to others. This helps in college because he is articulate and knowledgeable, especially about so many environmental issues. “The professors like that,” he acknowledges.

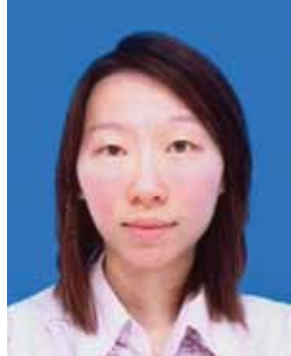
Maxim is an enthusiastic booster of SEED. “The program shows how beautiful science is,” he says, “and the program gives you many creative methods of working in science.” One of the best things about SEED, he believes, is that students do not work alone; there are always other students involved in whatever project is at hand. “It can be difficult to get teenagers interested in science,” Maxim adds, “but SEED is great at doing just that—getting the students interested in science and keeping that interest going.” He even credits the confidence he developed while in SEED with helping him get into college. “I had no issues being accepted. I just took my exams and passed them easily.”

A message for the future

“It seems like it would be very simple to identify a problem,” explains Maxim, “but SEED helped me analyze and assess situations and identify the problem.” To current SEED students, he says, “Don’t miss the opportunity to be part of this beautiful program. Don’t lose contact with those you meet. Keep the program active by being creative. Work in teams. Exchange ideas generously.”



Maxim learns to program the GoGo Board at a workshop.



Pun Chee Yap: “My Way of Giving Back to the Community”

For Pun Chee Yap, a SEED project in her final year at SMK Bandar Sunway secondary school became the first step on the road to a career as an engineer with Schlumberger. “SEED organized a water conservation project at the start of the 2004 school year. We worked on it throughout the year until school ended. I joined the project because it offered a hands-on application of science. It also had a goal of showing how science could impact the community. At that time I had no idea that it would lead me down the path to an engineering career.”

Once she started working on the water project, Pun Chee and the other SEED students organized science workshops, reading classes, and career counseling sessions that taught students the dos and don'ts for an interview. “I was very active in SEED during my last year in school. In fact, I was on every organizing committee for all the school's SEED events,” she recalls.

As part of Pun Chee's school's SEED activities, the students attended a water pollution workshop. Her group created a project that demonstrated that the water of a heavily traveled river was polluted, even though it appeared very clean. They also developed a water-cleanliness awareness program for the nearby community. The project won the top award of the workshop. Pun Chee and teammate Melody Leong were invited to attend the Society for Organizational Learning (SoL) Forum in Dearborn, Michigan, in late October 2004, where they presented their winning SEED water

project to high-profile business executives. Pun Chee was also part of a discussion panel that included William Ford, Jr., then the CEO of Ford Motor Company. Talking with Mr. Ford and speaking on a panel with him was truly a milestone for a girl who had never left her home country before.

After the conference, Pun Chee was offered an internship with Schlumberger's client support laboratory in Kuala Lumpur, Malaysia. “Usually Schlumberger offers internships only to university students, but I was offered the position right after graduating high school,” she explains. The internship gave her an overview of what it would be like to work in the oil and gas industry.

Although she had not considered it before, Pun Chee decided that she was very interested in this type of career. She applied for and was awarded the PETRONAS (Petroliam Nasional Berhad, Malaysia's national oil and gas company) scholarship to study at the Universiti Teknologi PETRONAS, a top university in Malaysia. Pun Chee studied mechanical engineering, with a minor in petroleum, and was hired full time by Schlumberger in 2010.

Since then, she has worked for Schlumberger in various parts of the world. As of September 2012, she is located in Chad as the IPM Completions Engineer, working on rigs.

Name: **Pun Chee Yap**

School: **SMK Bandar Sunway, Petaling Jaya, Malaysia**

Years attended: **2000-2004**

First exposure to SEED: **2004**

Post-SEED: **Universiti Teknologi PETRONAS, studying mechanical engineering and petroleum, graduated 2010 and now working for Schlumberger as a well engineer**

Even while attending university, Pun Chee continued to volunteer with SEED. “I helped run activities around Malaysia even after my internship, for example participating as a coordinator for a robotics workshop in 2005.”

A special place in the heart

SEED holds a special place in Pun Chee’s heart. Winning the water conservation project was “one of the highlights of my life. The experiences I have had with SEED were truly amazing. And one thing has led to another,” she adds. “A SEED workshop led to presenting my project in the US, which led to an internship with Schlumberger, which led to a university scholarship, which led back to Schlumberger.”

All in all it was an amazing learning experience for Pun Chee. Because of this, she makes a point of contacting the local SEED coordinator in her work locations. “I want to be included whenever there is an activity. I make it fit into my work schedule,” she says, adding, “I have also registered as a volunteer on the SEED Web site, to keep myself in the center of things with SEED.”

Seeing the bigger picture

Pun Chee credits SEED with helping to cultivate her interest in science. But more important, she notes, “I learned to see the bigger picture when tackling everyday issues.” Her water project taught her to solve the problem at hand as well as to look

at how it impacted the community and how the community might respond. She learned that appearances do not tell the whole story. The water that her group tested was considered clean, but she and her teammates proved otherwise. She also liked the different topics available. “Subjects like robotics are not what we usually learned in school,” she states, “and with this kind of knowledge students can really start to think outside the box.”

SEED helped Pun Chee to hone the leadership skills needed in the professional world: project presentation, public speaking, and learning to explain your work clearly and concisely. “The material is only as good as the presenter, so learning to have confidence in what you are saying is really important,” she points out.

Striking a balance

Pun Chee is now a well engineer working in the IPM (Integrated Project Management) segment of Schlumberger. “My job provides a very challenging opportunity to learn and grow in this industry while allowing me to do what I love best: traveling.” This makes it somewhat difficult to be actively involved in SEED at the moment, she acknowledges, “but I believe in the importance of striking a balance between work and play. I try my best to keep in touch with the SEED coordinators in Malaysia and will participate whenever I can.” Pun Chee found the time to volunteer at the 2011 SEED Robotics Workshop in Kuala Lumpur. Her favorite part of



Melody (left) and Pun Chee (center) discuss their project with SEED Director Simone Amber at the SoL conference in 2004.

the workshop? The hands-on exercise, of course. She still finds it very fun to do and sometimes challenging, too!

Pun Chee remains interested and passionate about SEED. “I look forward to being actively involved wherever my job takes me. I want to continue supporting the advancement of education and to spread the word about SEED among my colleagues. This is my way of giving back to the community.”



Simon Lim: “Your Journey Does Not End”

Simon Lim has loved computers since he was a young boy. He played games on them; he opened them up to dissect the insides and see how they worked; and he took classes and studied them in school. As an adult Simon turned his passion for computers into a career in information technology (IT). But he discovered another passion at SMK Methodist Sentul secondary school. “In 2002 SEED came to my school to set up a computer lab with Internet access. I became president of the new Computer Club, and I was the person in charge of repairing the computers.” It was then that Simon’s infatuation for all things computer became intertwined with his newfound love for SEED.

Simon attended his first SEED workshop—the first one SEED held—in 2003. The topic was water; the participants tested a nearby stream and compared it with the school’s tap water. Simon and his friends were so enthused with the hands-on science that they organized their own water-testing workshop in the school for the junior high school students. Ultimately, he attended at least five SEED workshops as a student. “The most memorable one,” Simon notes, “is the first Malaysia National Workshop in 2005. Students from all the SEED schools in Malaysia spent a week together to work on robotics projects.” He met students from all around his country and made many new friends.

Simon’s favorite SEED activity was the GoGo Board. “I loved programming the sensors and motors,” he exclaims. “The GoGo Board was the most interesting project I ever worked on as it involves computer programming and working on solutions to solve daily problems.” Simon credits exposure to the GoGo Board and facilitators such as the SEED educator team and Roger Sipitakiat (the tool’s developer, but also a Massachusetts Institute of Technology graduate student at the time) with giving him knowledge and passion in science and technology.

After graduating from secondary school, Simon completed his A-levels in computer science, math, and physics at HELP University College. He remained active with SEED, stepping into the role of workshop facilitator. Simon believes so strongly in the power of SEED that it has become his second calling. Even as he establishes himself professionally in IT in the financial industry, he devotes his free time to helping students in Malaysia through SEED.

Creating a network

For Simon, one of the best aspects of SEED was the learning-while-doing (LWD) philosophy. “This creative and unconventional approach toward learning was very different from how we were taught,” he explains. “In school, we learn about the theory behind a topic but we don’t get

Name: **Simon Lim Kok Loong**

School: **SMK Methodist Sentul, Kuala Lumpur, Malaysia**

Years attended: **2001-2005**

First exposure to SEED: **2002**

Post-SEED: **HELP University College, working as a technology expert in the financial services industry**

much practical experience through hands-on activities. Projects like water testing or GoGo Board programming gave me that experience and expanded my horizons.”

As a facilitator, Simon learned how to lead and coordinate an event. “SEED activities and workshops are well-planned, with particular objectives in mind,” he says. “For me, it is very exciting to spend quality time to facilitate a workshop. I enjoy working with students and teachers, and I like assisting the SEED coordinator on the administrative and coordination tasks.”

Simon learned also to create a network of people. He regularly invites students from his former school to attend workshops. He collaborated with the Schlumberger Spouses Association (SSA) to help the students in Malaysia learn English, and he keeps making the time to help with workshops. “I have been volunteering and facilitating national and regional workshops since graduating from secondary school. In total I have probably helped out with at least four or five of them from 2006 to 2008.” This is by far a record for SEED.

Simon’s great efforts have led to a special SEED alumni program. “I am the first person in this program.” As an active alumnus Simon connects students and teachers on the SEED Web site, as well as facilitating workshops. The best part of being a SEED alum, says Simon, “is that I gathered five former SEED students to facilitate and volunteer in Malaysia’s 2011 National Workshop.”

Keeping in touch

Simon tells the current SEED students to “get the most out of the workshops by learning new skills.” More important, he adds, “keep in touch and continue to build friendships with the other students you meet at the workshops. I still keep in touch with the students I met from other SEED connected schools and from my school. These former students have volunteered with me at workshops. We all want to give back.” Simon knows that he can influence the next generation of students by volunteering at workshops. “Remember your journey with SEED does not end after secondary school.”

For Simon, it was just the beginning.



(Top) Simon discusses a workshop presentation with co-facilitator and former SEED student Hafiz Azizi (center) and SEED team member Corinne Damas Sandiford (right).



(Left) At the end of the workshop, Quirino High School teachers receive certificates from Simon.



Name: **Ekundayo Akuma**
School: **Igbobi College, Yaba, Lagos, Nigeria**
Years attended: **2005-2010**
First exposure to SEED: **2009**
Post-SEED: **University of Benin, studying art**



Ekundayo Akuma: “Follow Your Heart”

The annual SEED art competition challenges students to connect their artistic and creative talents with themes of science and nature. For one Nigerian student, the competition was a confirmation of his talent. SEED has had an established program at Igbobi College since 2005, and Ekundayo Akuma was introduced to it in 2009 when he entered the annual art competition . . . and won.

“I had not heard of SEED until I reached my sixth—and final—year at Igbobi. I was already focusing on art in school and was encouraged to enter the competition,” he explains. The theme that year was biodiversity, which presented Akuma with an interesting challenge: “I decided to show how plants and animals depend on each other for survival, climaxing with the farmer and his cattle.” His painting of a Nigerian farmer took top honors in the 13–18 age category. It was his first experience with SEED, and, he says, “thankfully, it came out great.” As part of the award, Akuma received art supplies and a book about art, along with a donation to his school in his name.

Art has always been a big interest of Akuma’s. “From birth through nursery school, primary school, early secondary school . . . I have always been drawing, painting, and designing.”

Akuma was often chosen to represent his school in art competitions, and he often won! But the SEED competition was different. “The way it links art and science is unique,” he explains.

Akuma describes his SEED experience as “wonderful. Winning the competition was a great honor for me as an artist, and a highlight of my life.” His award caught the attention of the local newspaper, which featured him in a story.

Now attending the University of Benin, Akuma is studying fine and applied arts. He sells his artwork through private commissions of portraits and other works. He has also provided pen-and-ink illustrations for two educational books, *Amuda Alamala* and *Six Biblical Heroines*, both by Adetoro Adeoba Oye-Somefun, published in 2011.



Akuma won the top award in the 2010 SEED art competition for his picture of a farmer and his cattle.

Nature and art

So, how does SEED influence artists? For Akuma, it meant taking on a topic that was relatively new to him. "I learned about making paintings of nature and wildlife by using my imagination," he explains, "and my interest in fine art and sculpture was further stimulated by the SEED competition." For Akuma, the art competition is what makes SEED special.

Winning the competition also helped to cement his decision to pursue a degree in art at the University of Benin. "Studying art at the university is what I love."

Enriching students' lives

Akuma remains an avid supporter of SEED and the art competition. "SEED provides a very versatile program, which accommodates students far and wide and allows them to participate in different levels of the competition: within their schools, within their countries, and among all the SEED students," he says. "Kudos to SEED for this approach." He would like to see the program continue to grow and to encourage even more students to be artists and scientists. "My advice to current SEED students is for them to always follow their heart." Akuma may not be available to assist with workshops right now but if SEED ever needs a painting, we know where to turn.



Akuma's other artwork includes portraits, still life paintings, and pen-and-ink illustrations.



Frank Nyarkoh: “I Am Now Somebody”

One action, one decision, and one change of direction—that is Frank Nyarkoh’s story. When Frank joined his school’s SEED program, he expected to learn more about science. He didn’t expect his life to take a whole new direction, but that is what happened. Bompeh Secondary and Technical School joined the SEED program in 2009. Frank participated in a Fruit Power workshop in April of that year. “I was so excited and happy to become involved in a bigger community,” he exclaims.

But what happened next wasn’t something anyone could foresee. Like many of the other students at his school, Frank entered the annual SEED artwork competition. The theme that year was biodiversity, and he submitted a watercolor painting of animals by a river. His entry was selected as a finalist, and he was awarded a digital camera as a prize.

Frank began taking photos with his new camera, “mostly landscapes,” he adds. But that was just the start. With some computer skills gained from his participation in SEED, and by practicing on a friend’s computer, he began to edit his photos. “I started to make realistic and beautiful designs, which I then used as backgrounds for calendars,” he explains. Suddenly, Frank was in business, and by the end of 2011, he had produced 42 calendars. He has continued to produce calendars, even while attending the University of Education, Winneba.

Connecting students

Frank enjoyed learning how to make electricity by using fruit at his SEED workshop, but his favorite SEED activity was the art competition, “of course,” he says, smiling. He learned how to mix colors to make a realistic painting, and it opened up his world to something different. His newfound passion for photography melded with his new interest in nature. “Most of my works are based on nature. Because of the art competition theme of biodiversity, I realized how much I like this subject matter.” Now, any time he sees a natural object that interests him, “I snap a photo. Then I transfer it onto a friend’s computer and try to transform it into a new design.”

Because of his success in the 2010 competition, Frank decided to act as an adviser to the younger students in the 2011 competition. “I told them to take this competition seriously. I showed them my digital camera and explained what I was doing with my prize, how helpful the competition was for me, and that it could help them too.”

Frank feels that SEED has a lot to offer students, and he would like to pass that message on. He says, “I would tell all current students to fully participate in the annual art competition and also to attend workshops. Participating in SEED will help them to be creative and imaginative and to develop new ideas.” Frank is ready to help. “I want to help talented young artists, and I would be glad to attend any SEED workshop if I am called upon.”

Name: **Frank Nyarkoh**

School: **Bompeh Secondary and Technical School, Takoradi, Ghana**

Years attended: **2007-2011**

First exposure to SEED: **2009**

Post-SEED: **University of Education, Winneba, studying graphic design and art education**



Frank's watercolor of animals by a river was a finalist in the SEED 2010 art competition.

Finding his creativity

For Frank, working with SEED, especially participating in the art competition, was a transformative experience. "There was some hidden creativity in me," he says, "and with the help of SEED, it has come out. Previously I was unknown, and I didn't stand out from the crowd, but as a finalist in the 2010 SEED annual competition, I am now somebody."



Frank's prize was a digital camera, which he has put to good use by creating personalized calendars that use digital images for backgrounds.



Adriana Abreu: “Make the Most of Learning”

Adriana Abreu already knew she wanted a career in science by the time she had reached secondary school. At age 16, she thought she would pursue a program involving health or life sciences. Her participation in the 2006 Venezuelan national SEED workshop changed her course. The event was held in Ciudad Ojeda that year, and she was one of ten students selected to attend from the Liceo Nacional Dr. Raul Cuenca. The workshop focused on alternative energy sources, and the students and teachers used the GoGo Board and MicroWorlds to build their projects. Adriana discovered that she loved working with the GoGo Board and other electronics. She was so enthused about what she learned at the workshop and her exposure to Schlumberger that “I changed my mind and decided to study engineering. The university I wanted to attend had petroleum engineering, so I chose that specialty.”

Following the national workshop, Adriana and her colleagues wanted to introduce the information they had learned to other students at their school. They organized a workshop at the lyceum and invited Schlumberger management and students from nearby schools. “Workshops were my favorite activities,” she says, “because I had the opportunity to get to know people from other states and schools intimately by spending several days with them. We shared ideas and developed projects.” For Adriana, the best part was building the project models, “and then watching them work.”

The activities with SEED led to other opportunities for Adriana to interact with Schlumberger. “I attended the opening of Liceo Bolivariano in Santa Apolonia, with Venezuelan coordinator Iraima Ojeda and Schlumberger manager Atilla Kaplan.” During the trip, Mr. Kaplan offered her the opportunity to study English through the training program that Schlumberger offers its employees, as a benefit of being a SEED student. She adds, “I was very grateful, because as an engineer it is vital to speak English.”

Staying connected

After high school, Adriana continued working with SEED as a volunteer, attending school openings and workshops. “I had the opportunity to be one of the facilitators at a regional workshop in Barinas. I learned a lot as a facilitator.” She cites specific skills, such as gaining more knowledge about alternative energy sources and learning to program the GoGo Board to make projects move, something she had not previously done at workshops. But most of all, Adriana notes, “I lost my fear of public speaking, of presenting a project to managers.”

Name: **Adriana Beatriz Abreu Valbuena**

School: **Liceo Nacional Dr. Raul Cuenca, Ciudad Ojeda, Venezuela**

Years attended: **2005-2007**

First exposure to SEED: **2005**

Post-SEED: **University of Zulia, studying petroleum engineering, graduated 2012**

After entering the University of Zulia in spring 2008, Adriana continued to receive support from Schlumberger. “I got a monthly stipend, as long as I kept my grades up, and the chance to do my internship and thesis work at Schlumberger,” she explains. Adriana received her degree in petroleum engineering in December 2012, and is job hunting. She hopes to work for Schlumberger because “it is the best place for engineers.”

Adriana looks forward to the day that she can volunteer and support SEED once again. She wants to continue attending workshops to develop relationships with current students. “I would love to share my story, to serve as motivation for current students,” she says. “There are many ways to stay connected,” Adriana explains. “It is vital to communicate through the Internet, but it is more valuable to stay connected through workshops, motivational talks to students, and teachers.”

A life-changing experience

Adriana advises all students at SEED schools to take advantage of the program because “being part of this project is a privilege. Make the most of the learning you can do with SEED.” She recommends that students share their ideas with both the volunteers, “who have much to offer,” and their fellow students at other schools. “It is a great way to develop projects,” she notes. “After all, who says that they will not devise something so good it can provide solutions to the problems in their own community and maybe even beyond?”

“The experiences SEED gave me were unique,” Adriana concludes. “They allowed me to meet people and visit many places and to learn about other people and about myself.” Most importantly, she adds, “SEED was an experience that changed my life. And if I could repeat it, I would do it all over again!”



Adriana works with a GoGo Board at a workshop.



ACKNOWLEDGMENTS

Akuma, Simon, Adriana, and the other students profiled in this book are just a handful of the many who have been impacted by SEED. Behind this achievement are thousands of volunteers, teachers, friends, school administrators, parents, SEED coordinators, SEED staff, and Schlumberger employees and managers who contribute their time, their talents, and their hearts to bring SEED activities to schools around the world.

SEED would like to acknowledge the help and contribution of the following people: the past and current SEED coordinators, who are too many to name but who tirelessly facilitated the program in their countries and remained in communication with these former students; SEED team members Susan Randel, Love Zubiller, Annette Sellan-Calero, Christopher Jones, Krysti Ray, and Thierry Simien; former SEED team members Eya Tkachenko and Carol Beal; editorial team members Janine Stanley-Dunham and Patricia Bayer; educator, author, and SEED partner Linda Booth Sweeney, for the initial direction and excellent suggestions throughout the process; Milton Glaser, Molly Watman, and the team at Milton Glaser, Inc., for coining the phrase “SEED Effect” and for providing the original vision for this concept; and SEED director Simone Amber, for inspiration and guidance.

www.planetseed.com