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How the NAT was “won” with the help of DOST’s digital science library

By **Espie Angelica A. De Leon**
S&T Media Service, DOST-STII



Ms. Robelyn Cruz (R) of DOST-STII shows a library personnel the new additions of STARBOOKS

Dr. Victoria B. Roman Memorial High School in the municipality of Pilar in Bataan Province has reason to be proud.

The school, which formally opened in 1998 with only two regular teachers and 46 first year high school students, ranked number 1 among more than 30 public high schools in the province, in the National Achievement Test (NAT) for Grade 10 in 2014 and 2015. It was the school’s first time to grab the top spot. Previously, the school ranked no. 7 out of 33 schools in the NAT.

Administered by the Department of Education, the NAT involves a set of standardized tests which assess students’ strengths, weaknesses, and achievement level in five major subjects. These include science and mathematics.

Chief Librarian Leilani Enopia believes that the Department of Science and Technology’s (DOST) STARBOOKS was a factor that brought about this landmark accomplishment.

STARBOOKS stands for Science and Technology Research and Academic-based Openly Operated Kiosks, the first digital science library in the

Philippines. It has a user-friendly interface and needs no Internet connection. It contains tons of science and technology (S&T)-related materials in text, audio, and video formats from local and international sources.

Developed by experts from DOST’s Science and Technology Information Institute (DOST-STII), STARBOOKS is a recipient of the 2015 Outstanding Library Program of the Year Award by the Philippine Association of Academic and Research Librarians. STARBOOKS also earned the approval of the international community when the prestigious American Library Association presented it with the American Library Association Presidential Citation for Innovative International Library Projects in June 2015.

Dr. Victoria B. Roman Memorial High School became the proud owner of two STARBOOKS units in August 2014.

Since then, more students have been going to the school library to use STARBOOKS for their assignments, research, and projects, observed School Principal Felisa C. Bravo.

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DOST’s free courseware helps upgrade science and math education

By **Marco V. Mergal**
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Two teachers, one from Quezon City and another from Tarlac, expressed their gratitude to the Department of Science and Technology (DOST) for a courseware that they deem very helpful in their teaching profession.

Meanwhile, another from Camarines Norte sent this message via the courseware’s Facebook page: “Your courseware project will be very helpful to my nieces and nephew.”

What courseware are they talking about?

The DOST’s Advanced Science and Technology Institute (DOST-ASTI) has been developing Mathematics and Science courseware modules for elementary and high school students and teachers since 2006 with the support of the Science Education Institute (DOST-SEI).

This Courseware Project (<http://courseware.dost.gov.ph/>) aims to make math learning more accessible to students and help math teachers find ways to teach the subject in a more effective way. In so doing, the courseware serves to upgrade and improve science and math education in the country by enabling schools to take advantage of Information Technology (IT) in conducting streamlined classroom lectures in a cost-effective way. As a result, students become more competitive.

“The coursewares make full use of information technology to aid our classrooms and teachers in enriching the students’ learning environment in science and mathematics,” said DOST Secretary Mario G. Montejo. “These tools are developed by Filipinos for Filipinos, hence teachers no longer have to use foreign materials. The platform used in the coursewares is very appropriate for today’s students whose interest are into computers and information technology.”

The science and mathematics courseware modules are provided for free to public schools and are also made available as online resources.

For this end, DOST-ASTI created a website in 2014 primarily to have a venue where Filipinos can download the modules for free.

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Grade 10 students Jillyn May N. Lagos and John Jeremy E. Desipida testified that they do not have a single classmate who hasn't yet used STARBOOKS. In fact, they said, sometimes a lot of them go to the library at once to use the kiosks that it gets almost crowded in the room.

John Jeremy agreed with Enopia that STARBOOKS did play a role in their no. 1 ranking in the NAT. "Naging helpful sa amin yung STARBOOKS kasi po yung mga hindi namin gaanong nata-tackle sa amin ng mga teacher namin, dyan na po namin sila nahahanap (STARBOOKS became helpful because through it, we were able to search for and read up on topics which our teachers told us about but which we did not tackle in class)," he said.

Jillyn also related that STARBOOKS helped her personally when she joined the Municipal Children's Congress - Essay Writing in English Contest. To find the necessary information and prospective topic about children that she can tackle in her essay, Jillyn turned to STARBOOKS. She placed third out of eight participants from different public and private schools in the entire municipality of Pilar. Meanwhile, her schoolmate Darlene, who is in Grade 9, copped the second prize. Darlene also logged into STARBOOKS to help her develop her story.

The youngsters also turn to STARBOOKS to read up on topics not necessarily discussed in class, but which they are interested in. Jillyn, who wants to be an architect someday, reads up on architecture and watches videos about space. She also turns to cookery topics, not just for her

lessons in Technology and Livelihood Education, but also to look for possible "merienda" dishes. Meanwhile, John Jeremy searches for information on simple programming as he wants to work in information technology. He shared that he was also able to use Britannica Ultimate Encyclopedia in STARBOOKS.

"Yung mga toggles niya po, madali pong intindihin. Lalo na po andun yung search bar niya, nasa gilid, mas kita po siya. And then pagbukas niyo po, makikita niyo sa bars kung video, o picture, o article yung bubuksan ninyo. Mapi-print niyo din po lalo na kung mga articles at data (The toggles are easy to understand. Especially since the search bar is at the side, so it can be easily seen. And then, when you open it, you can see in the bars if what you are opening is a video, a picture, or an article. You can also print them, especially articles and data)," explained John Jeremy.

Jillyn added, "hindi na kailangan ng pera para pumunta sa computer shop. Puwede na po rito sa library (You don't need to have money to do research in a computer shop. You can do it right here in the library)."

However, it is not just the students of Dr. Victoria B. Roman Memorial High School who have benefited from STARBOOKS. It is a great research tool for the teachers and parents as well. Bravo said that when they acquired the two units in 2014, one of the school's objectives

was to get the students' parents to rely on STARBOOKS for livelihood ideas. However, this was not achieved.

Livelihood videos, aptly called DOSTkarte livelihood videos, are also available in STARBOOKS. To augment its collection, the STII staff is currently processing livelihood videos from the former Technology Resource Center for inclusion in STARBOOKS.

This time however, Bravo is compelled to fulfill this objective especially with the recent upgrading of the two units in the school. So now, their STARBOOKS units contain the newest additions into the digital library: disaster preparedness materials, interactive courseware, and supplement materials for K-12. Apart from these, it also contains books, magazines, journals, scientific and research papers, Britannica Ultimate Encyclopedia, and many others related to science and technology.

"Magpapatawag po ako ng PTA para i-introduce ko po na STARBOOKS has been upgraded (I will call for a PTA meeting so I can introduce to them the upgraded version of STARBOOKS), and there are new info there which they can use to improve their lives," said Bravo.

If the school succeeds with this goal, that would be another laurel reaped and another reason for Dr. Victoria B. Roman Memorial High School to be proud.

DOST's free courseware...
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DOST Courseware Facebook page.

All the completed modules have been compiled and the relevant ones uploaded to the DOST Courseware website. These modules have already been reviewed and tested through the collaboration of DOST-ASTI, DOST-SEI, and UP's National Institute of Science and Mathematics Education by conducting user-acceptance tests in several schools nationwide.

The website also archives project-related news articles and houses a photo gallery of students and teachers using the courseware in their schools. Based on statistics from the backend side of the DOST Courseware website,

more than 15,000 downloads have already been registered as of this writing.

The courseware developers from DOST-ASTI also tapped social media to raise awareness and promote the courseware website. In less than a month, the DOST Courseware Facebook page (<https://www.facebook.com/Courseware.DOST/>), already had 300 Facebook likes. The majority of the site's visitors are teachers, students, and parents, some of whom have expressed their satisfaction over the courseware and how it helped them do their jobs better as science and math teachers.

DOST program helps churn out quality feeds at lower cost

By **Geraldine B. Ducusin**
S&T Media Service, *DOST-STII*

If you can't find it, make it. This is what prompted a group of poultry raisers twelve years ago to venture into what is now Qualimeal Feedmills, Inc., which was specifically set up to produce and guarantee their supply of quality feeds at less cost.

"Qualimeal was mainly established to supply stockholders and directors with whom some small entrepreneurs and growers, mainly swine, get their supply of feeds. Stockholders thus pay for their feeds and they then assume the responsibility to pay the feedmill. It does safeguard the feedmill to prevent possible occurrence of overdue accounts. Today, it serves other clients but through the directors," said by Teotimo L. Reyes, Jr., president of Qualimeal Feedmills.

In the past, feeds were sourced from various feedmills but the quality and price were not good, negatively affecting profits. "Quality" here entails attaining the desired weight of fattening swine in a certain marketable age; while for layers, it means attaining standard or even better in egg production even without nutritional supplements.

Back in 2004, with less than P3 million in capital, two office staff and six production workers, Qualimeal Feedmills, Inc. set out to produce quality feeds at lower cost. In seven years, the company acquired its own poultry farm with 20,000 heads of day-old-chicks. Of these, 7,000 were used for egg laying production, while the 13,000 were sold in the market.

But in 2013, Reyes learned from friends about the Department of Science and Technology's (DOST) Small Enterprise technology Upgrading Program (SETUP), which supports local enterprises to enhance their production and operations capability by providing a package of assistance.

Qualimeal availed itself of the program and now vouches for SETUP's big help to the business.

"Before SETUP, we produced 12,000 to 14,000 50-kilogram bags of poultry and swine feeds. Our mixer and hammer mills were capable only of producing half ton. But the assistance from DOST has greatly improved our entire production," says Reyes Jr.

Reyes credits the boost to DOST's SETUP assistance which consists of the following: 5-ton capacity hammer mill; 1-ton capacity feed mixer; feed hopper (4 units); feeder unloader (2 units); plus the Manufacturing Productivity Extension Program; and Energy Audit and Cleaner Production Technology.

The company's production has increased to 17,000 and even up to 20,000 bags per month and the overall operation's cost was cut down while efficiency increased. Sales improved by 25-30 percent.

One of the challenges in the company's line of business, according to is erratic supply and cost of ingredients like corn, soya and rice bran. But these were countered with constant monitoring of sources, inventories, and analysis of common practices of suppliers of raw materials.

Today, all stockholders and directors are product users, 75 percent for layers and 25 percent for swine. The office staff increased to five, plus 14 production workers, and 10 contractual personnel handling the loading and unloading of raw materials.

Experts eye...
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also mentioned that research, development and extension programs in the academe can significantly shape the competencies of the industry in terms of human resource development, establishing standards for production and logistics, laboratory services and quality assurance, and the socio-economics of the halal industry.

S&T also plays a big role in the technologies, laboratories, and facilities used by the industry, especially during production, testing, and certification of Halal products.

Aside from these, the congress also showcased the BIMP-EAGA and ASEAN cooperation through "Big Brother Approach" as a strategy wherein HEIs and other halal stakeholders of ASEAN countries with a developed halal industry will share their respective expertise, experiences, and support to the HEIs of other countries for the advancing of the Halal sector.

"Our main goal is to pursue a unified, sustainable direction for and make Mindanao the halal center in the Philippines, and develop the Philippine halal industry that is at par with our neighboring ASEAN countries. Let us maximize all the opportunities that are coming to us, particularly through a research and development track," Sec. Antonino added.



In photo are (from left) Director of Commission on Higher Education-Higher Education Regional Research Center of University of Southern Mindanao Dr. Emma K. Sales, a representative from Thailand, Deputy Director of The Halal Science Center in Chulalongkorn University in Thailand Dr. Sulida Wangchi, Secretary General of Standards and Metrology Institute for Islamic Countries (SMIIC) in Turkey Mr. Ihsan Ovut, Regional Director of the Department of Science and Technology XI Dr. Anthony C. Sales, Specialist at SMIIC in Turkey Engr. Yasin Zulfikaroglu, and Chief of Communications Resource and Production Division of DOST- Science and Technology Information Institute Dr. Aristotle P. Carandang, organizers and speakers of the recent BIMP-EAGA International Halal Congress: An Academe Perspective.

Other activities during the event includes an academic forum and Halal R&D poster and product exhibit.

The BIMP-EAGA International Halal Congress: An Academe Perspective, with the theme

"Integrating HEIs in the Halal Value Chain", was a three-day event organized by USM, in partnership with the Department of Agriculture XI and XII, DOST XI, Department of Tourism, MinDA and Technical Education and Skills Development Authority.

Experts eye crucial role of HEIs in pushing PH halal industry

By Romelie Janelle Maranan
S&T Media Service, DOST-STII

To further address the various setbacks in the halal sector and the growing demand for halal products in the country and the global market, the academic sector is now being tapped to serve as a thrust for the development of a robust Philippine Halal industry.

At the recent Brunei Darussalam, Indonesia, Malaysia, Philippines- East ASEAN Growth Area (BIMP-EAGA) International Halal Congress last March 1-3, stakeholders from the academe, research community, industry, and the government sector from the member countries of the BIMP sub-region gathered to highlight the important role of Higher Education Institutions (HEIs) in advancing the halal industry in the country.

The Philippine Halal sector recognizes that research and development (R&D), as well science and technology (S&T), as staples in the halal industry, but this is the first time for HEIs to be included in the discussions.

Halal is Arabic for any object or action that is permitted or lawful to use in accordance to the Sharia Law. Currently, halal is not only for the Muslim, but is also a healthy choice for non-Muslims. The increasing demand for halal foods is now becoming a driver for socio-economic growth.

According to University of Southern Mindanao (USM) President Dr. Francisco Gil Garcia, innovations in the halal production through the application of R&D and S&T do not only increase its competency, but also ensure the sanctity of this religious activity for the Muslims.

"As the country aggressively initiates its



(Front row from left) DOST XI Regional Director Dr. Anthony Sales; Head Executive Officer of Office of Senator Cynthia A. Villar; Mindanao Development Authority Chair Secretary Luwalhati R. Antonino; and USM President Dr. Francisco Gil N. Garcia lead the ceremonial opening of the Halal Congress and cutting of ribbon for the Halal Poster and Product Exhibit (Photos by Romelie Janelle Maranan, S&T Media Service)

plan to develop its Halal industry, a parallel effort should also be provided to HEIs to be integrated in the Halal value chain, especially now that the population of our Muslim brothers and sisters is projected to grow in the next years," Dr. Garcia added.

Meanwhile, Mindanao Development Authority Chairperson Secretary Luwalhati R. Antonino contended that with HEIs now fully on board, the halal sector can now focus on how the academe can contribute in halal development and promotion. The academe can include halal in the curriculum and recognize the crucial role of S&T and R&D in advancing this particular industry.

There is a dire need for more Halal or Halal

Science Muslim professionals since it is a must for the Halal industry to be manned by devout Muslims, so there must be enough studies available in HEIs, experts say.

USM, as one of the premier state universities in the Philippines, has already started its initiatives by including halal information in the curriculum, as well as in research, extension, and production. It offers major studies in Halal Food Management and Technology for the first time under the Bachelor's degree of Science in Islamic Studies. The university is also working out for the inclusion of Halal Science in the curriculum.

Department of Science and Technology (DOST) XI Regional Director Dr. Anthony C. Sales

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inFOCUS



Department of Science and Technology (DOST) Secretary Mario G. Montejo (in native hat) tries one of the food delicacies produced by one of the exhibitors in the SIPAG Fiesta event of the DOST's Philippine Council for Agriculture, Aquatic Resources Research and Development (PCAARRD). The SIPAG Fiesta is a celebration of the many innovations developed by DOST-PCAARRD in agriculture and aquatic resources that Secretary Montejo mentioned during the opening ceremonies to have numbered 34 agri-aqua commodities that are unique and of world class quality made possible by intensive research and development efforts of local scientists and engineers.

(Text & Photo by Rodolfo P. de Guzman/S&T Media Service)