



UWI TODAY

THE UNIVERSITY OF THE WEST INDIES • ST. AUGUSTINE CAMPUS

SUNDAY 9 JULY, 2017



GROWTH, SURVIVAL, LEGACY

At the opening of the first Innovation Conference to be held at The UWI, Campus Principal and Pro Vice-Chancellor, Professor Brian Copeland, told the gathering that a major element of the day was that it had managed a coalescing of vital forces, so to speak.

“What is significant about today, though, is the wide cross-section of participants – a coming together of individuals with differing perspectives – from the public and the private sectors, from academia and government, from international agencies. Yet, we come together with one common cause: the need, no – absolute imperative – to increase Research, Development and Innovation in (RDI) Trinidad and Tobago.”

Professor Copeland, who was formally inducted as Campus Principal yesterday (July 8), outlined his vision for The UWI, saying students should be better equipped with the tools for survival in a highly competitive and dynamic world.

“We know that many UWI graduates are facing hitherto unseen levels of underemployment, even in the high-demand professions such as medicine and law. We have accepted the challenge of utilising our resources to help younger generations learn how to survive in the new dynamically changing world. In such a world, we believe it is of the utmost importance that our citizens be educated and trained to meet and beat every challenge that nature or humankind throws their way. They must be endowed with the ability to spot and exploit commercial opportunities, while deriving novel, ingenious, and workable solutions to our economic, societal and ecological challenges. This would be a legacy of self-sustainability.

“Such a legacy would be an enduring one. It would completely obliterate the debilitating cultural impact of slavery and indentureship. But, even more, it would determine the ultimate survival and growth of our region as a whole.”

(Professor Copeland’s address is on Page 6.)

Chancellor Designate, Mr. Robert Bermudez, gets a first-hand look at the Percussive Harmonic Instrument (PHI) as Campus Principal, Professor Brian Copeland, explains its inner workings during a break at the Innovation Conference held at the St. Augustine Campus on June 27 and 28.



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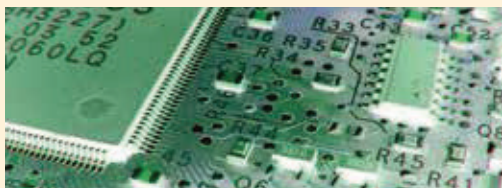
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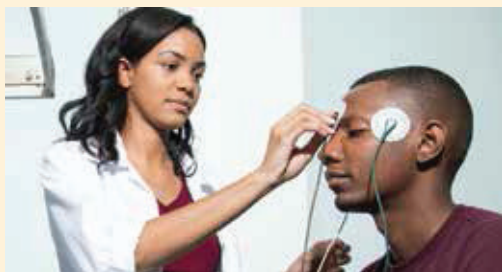
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FROM THE PRINCIPAL

UWI in the Cyberspace of 2050



I was recently invited to speak at the Rotary Club San Fernando South on the topic “The future of UWI in the Cyberspace of 2050.” Trying to imagine a future over thirty years away is always extremely risky and, some would say, close to impossible.

If it is one thing this past fifty years has taught us, is that the speed with which things change and are replaced is far more rapid than anything the world has known before. It means there is no way anyone can realistically paint a portrait of 2030, far less 2050.

What we do know is that the citizen of tomorrow has to be flexible and savvy to be able to survive.

The vision that the UWI team and I now share is that survival is by far the most important objective for any education system. We believe that our citizens must be educated and trained to meet and beat every challenge that comes their way.

But for us to get to that level of self-determination, we need to have a vision.

I took the risk of giving a forecast of the technologies available in 2050 based largely on some of today’s emerging technologies. One thing we can say for sure is that if we maintain the current trajectory, and if the world survives to 2050, the technology of that time will be unimaginably more advanced.

I will comment on just two aspects but we know these advances will bring new social challenges. Time and space do not permit me to delve too deeply on this aspect.

Transportation will be superfast, spanning hitherto inaccessible physical spaces, from the deep ocean to immediate space. There may be wars fought over extra-planetary real estate. Star Trek-inspired teleportation technology (“beam me up Scotty”) may well be at the point of commercial deployment. This technology is based on local disassembly and precise remote reassembly at the molecular level. It is not as farfetched as one might think, as ongoing experiments have opened doors to its possibility. If this technology comes to be, it would certainly disrupt the paradigm of physical transportation. It could revolutionize medical treatment and, as for any powerful technology, could make crime fighting significantly more challenging.

If that is not thought-provoking enough, if the technology is successfully applied to the teleportation of live humans, religions everywhere may all be driven to a state of disarray. How does one “beam” the essence of life?

Look at communications. In 2050 we should be able to simultaneously transmit to all five senses. Currently we communicate sound and sight. Over the past 10 years haptic technology, or tactile feedback, has allowed us to communicate touch. Haptics feedback has already successfully been used in remote surgery. I am pretty convinced that, based on what has already been experimented with or gone through preliminary field tests, by 2050 we would be able to communicate using smell and taste, and would have perfected touch or tactile transmission, pushing virtual interaction to its limit without the kludgy tools used today in virtual reality tools and games. Experimentation into the transmission of emotion has already begun at the MIT Media Labs. Movie experiences would be far different from what it is now.

Communication would be further enhanced by nanotechnology implants that tie into the human brain. If this comes to be, then it should also be possible to programme, de-programme and re-programme knowledge and skill into an individual – or transfer knowledge, skill and even personalities to computers and machines (androids and robots).

“I took the risk of giving a forecast of the technologies available in 2050 based largely on some of today’s emerging technologies. One thing we can say for sure is that if we maintain the current trajectory, and if the world survives to 2050, the technology of that time will be unimaginably more advanced.”

Even now, with the democratization of knowledge consequent to the proliferation of online courses, as one Australian University Vice-Chancellor stated in the Ernst & Young 2012 report, “Our major competitor in ten years’ time will be Google...if we’re still alive!”

However, the use of these bio implants would automate education at the knowledge transfer level. My colleagues in the education sector should take serious note of this possibility. I am secretly hoping that our young, keen computer scientists at UWI might also feature prominently in the global technological landscape based on work I have seen. For instance, they have just produced a suite of apps called AgriNeTT to help farmers manage their finances, monitor crop production, view soil and land information, check the suitability of land for planting specific crops and to monitor the daily prices of crops.

Automated learning would revolutionize distance learning so that it would not have the high dropout rates as at present. By and large, most of the current models do not fully accommodate students as social beings. Furthermore, in that world where knowledge transfer would supposedly be more accessible and effective, existing universities would have to re-engineer their processes and policies to do the following:

1. Provide a focal point for certification and recognition of academic achievement, regardless of how attained. The emphasis will be on the ability to apply knowledge – a competency/skills-based paradigm as opposed to a credit-based paradigm.
2. Focus much more on being creators of new knowledge. Teaching and research also would have to encourage more critical thinking among our students
3. Provide a richer student experience. As said by Evans Cameron, CTO for Education at Microsoft in 2012, “If there’s anything that will be significantly different 25 years from today, it’s that people won’t go to school for knowledge. They will go to school for an experience that they couldn’t otherwise have gotten online.” That experience will include “— not just facts and figures, but also analysis, interpretation, and curation of knowledge” (Ernst & Young 2012 Report).

4. Universities will have to align more strongly with industry and commerce as well as governments to build mutually beneficial partnerships. These alignments and partnerships, captured in the Triple Helix for sustainable development, would engage what we call the innovation spectrum, typified on one end by joint R&D programmes for improving product and process and, on the other, by commercialization of new research ideas. Students would naturally be involved in this process.

5. Operate in the global space by partnering with universities worldwide. The gap establishing the “best” universities would have widened. As one Australian V-C noted, “There will be 15-20 independent, global brands ... the rest will be playing for the silver medal.” Experts suggest that the select group will include the usual suspects – the Ivy Leagues of the world.

The UWI’s Strategic Plan has identified the potential realities and has set its sight on significant growth, with the objective of “Revitalising Caribbean Development.” Its implementation plan includes a range of initiatives: joint projects with industry – we will soon sign an MOU to provide for a “hack space” of sorts in the Faculty of Engineering, creation of posts of Professors in Practice for placement of industry captains in the university system, online delivery to be significantly expanded, and plans for the expansion of our Centre of Export Entrepreneurship and Innovation to leverage all of UWI capability to provide a conduit for moving student, staff and stakeholder ideas to reality.

Close your eyes and try to imagine 2020, 2030, 2040, 2050. It can be an exciting vision if you choose to be part of creating it. I encourage everyone to try this exercise. It was, for me, a bit more difficult than I first thought it would be. But it helps, because when you visualize the future, it allows you to set your strategy to enable our young ones to better prepare for it.

Brian Copeland

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■ CAMPUS NEWS

■ CHEMISTRY DISPLAY

At the coffee break on the morning of the first day of the Innovation Conference, Campus Principal, Professor Brian Copeland invited some of the speakers to take a look at some of The UWI innovations that were on display at the Teaching and Learning Centre.



From left: Dr. Ulrich Thiessen, Programme Manager from the delegation of the European Union to Trinidad and Tobago; Dr. Terrence Farrell, Chair of the Economic Development Advisory Board which co-hosted the Conference; Mr. Robert Bermudez, Chancellor Designate of The UWI; Ms Beverly Khan, Deputy Permanent Secretary in the Ministry of Planning and Development (representing the Honourable Minister Camille Robison-Regis); Professor Copeland; Professor John Agard, Director of the Office of Research Development and Knowledge Transfer, UWI St. Augustine; and Mr. Ronald Hinds, CEO of Teleios Systems Ltd and new head of the Chamber of Industry and Commerce.



Chemistry Display: Nizam Mohammed of the Chemistry Department at The UWI St. Augustine showed off some of the lubricants (velocity joint grease) developed by staff to Campus Principal Professor Brian Copeland, while Ronald Hinds, CEO of Teleios and head of the Chamber of Industry and Commerce, and Beverly Khan, Deputy Permanent Secretary in the Ministry of Planning, move in for a closer look. Among the coating products on display at the Innovation Conference were a primer, marine coatings and plastic cement, some asphalt-based and all with short drying times, and lower costs than comparable items.



New Dean of Science

Dr. Brian Cockburn has been appointed Dean of the Faculty of Science and Technology. He replaces Professor Indar Ramnarine, who will be assuming the position of Deputy Principal of the St. Augustine Campus in August. Dr. Cockburn's term in office will begin on August 1, 2017 and will be for a period of 4 years.

Dr. Cockburn is currently Senior Lecturer in the Department of Life Sciences and Deputy Dean/Outreach in the Faculty. He also serves as Chair of the Campus Committee on Examinations and as Campus Public Orator.

A graduate of The UWI, with a BSc in Chemistry and Biochemistry and a PhD in Biochemistry, Dr. Cockburn has done considerable research into diabetes and obesity.

In accepting the position as Dean of the Faculty, he said he feels humbled by the enormity of the task. It is a responsibility that invokes multiple feelings.

"(I am) excited to lead an academic unit with considerable potential to transform the region," he said. Saying that he is fascinated by the "diversity and talent of the human resource within the Faculty", Dr. Cockburn said he is determined "to treat everyone fairly."

Professor Copeland has been inducted



Professor Brian Russell Nigel Copeland was inducted as Principal of The UWI St. Augustine at a ceremony held at the Daaga Auditorium on July 8, 2017. The

ceremony, one of the University's formal events, was conducted with an academic procession and all the traditional rituals associated with such occasions. *We will feature highlights in our next issue.*

■ CAMPUS NEWS



■ OIL AND GAS

Alicia Elias-Roberts, Lecturer and Oil and Gas Law Course Director, at the Faculty of Law, UWI St. Augustine delivers her paper on Environmental Challenges in Offshore Energy Development at the UWI Oil and Gas Conference. The two-day Conference (June 8-9) brought together oil and gas law experts from around the world, including Trinidad and Tobago, Barbados, Jamaica, Guyana and Turks and Caicos from the region and the UK, USA, Canada and Angola to critically expand the discourse on energy issues in the Caribbean, particularly from a legal perspective. One of the action points coming out of the conference is to create a publication out of the conference papers. It is anticipated that the book will be launched in 2018.

For more information about the conference visit <http://sta.uwi.edu/law/events/registration.php> or contact conference coordinator: Alicia Elias-Roberts at alicia.elias-roberts@sta.uwi.edu

■ MIDWIVES, MOTHERS AND FAMILIES

The UWI School of Nursing and the Trinidad and Tobago Association of Midwives, jointly hosted a national midwifery symposium: “Midwives, Mothers and Families – Partners for Life,” in early May. The symposium highlighted the responsibility of midwives to be advocates for change, innovation, and the delivery of care to their patients. The event attracted 140 participants, primarily midwives and nurses to the University Inn and Conference Centre, St. Augustine.



From left: Dr. Bernadette Theodore-Gandi, PAHO/ WHO Country Representative; Professor Terence Seemungal, Dean of the Faculty of Medical Sciences; Ms. Frances Day-Stirk, President, International Confederation of Midwives; the Honourable, Terrence Deyalsingh, Minister of Health; Professor Brian Copeland, Pro Vice-Chancellor and Campus Principal, UWI St. Augustine; Dr. Oscar Ocho, Director, the UWISO; Mrs. Kathy-Ann Thomas Elbourne, TTAM; Dr. Rodolpho Gomez Ponce de Leon, Regional Reproductive Health Advisor, Latin America Centre for Perinatology, Woman and Health Unit, PAHO; Mrs. Marcia Rollock, CRMA.



Acting Director of the Institute of International Relations, Anselm Francis (seated-C), consultant, Gail Guy (seated-L) and Manager of the Diplomatic Academy of the Caribbean, Dr. Khellon Roach (seated-R) with participants at Session 1.

■ DIPLOMACY AND BUSINESS ETIQUETTE

The Diplomatic Academy of the Caribbean rolled out its first Summer Executive Programme for Young Professionals, “Protocol, Diplomacy and Business Etiquette 101,” in two consecutive sessions in early June 2017. In total, 63 professionals were trained from varying backgrounds, including participants from State agencies and the private sector. Participants also came from Barbados, St. Lucia, Antigua and Barbuda.

The Programme was facilitated by Gail Guy, a retired diplomat and protocol consultant who took participants through lectures and practical exercises on the fundamentals and elements of diplomatic protocol, state protocol, business etiquette, event planning, international law and national identity guidelines among other pertinent themes.



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The Innovation IMPERATIVE

This is an abridged version of the address given by Professor Brian Copeland, Pro Vice-Chancellor and Principal, The UWI St. Augustine Campus, at the opening of the Innovation Conference held at the Teaching and Learning Centre.

Today is an historical day for me as Campus Principal, as the UWI St. Augustine hosts this Innovation Conference. Not that an Innovation Conference on this Campus is itself a flagship event, indeed we have had our share of seminars, workshops over the years, the most recent being a foresighting exercise in the Faculty of Engineering. What is significant about today, though, is the wide cross-section of participants from the public and private sectors, from academia, government, and from international agencies.

We come together with one common cause: the absolute imperative to increase Research, Development and Innovation in (RDI) Trinidad and Tobago.

I want to thank the Honourable Minister [Camille Robinson-Regis] for taking the time to participate in this important conversation on innovation and national development. When I shared my vision for the Campus with her some months after assuming Office as PVC and Campus Principal, she was very supportive of the Campus' Innovation Imperative and I look forward to further engagements with her Ministry on this issue.

I want to especially thank the Economic Development Advisory Board for facilitating not just a conference but, really, an event that is a meeting of minds. Their catalytic role in pushing the innovation agenda deserves recognition.

Definitions

I want to ensure that we are the same page throughout this Conference by establishing a few definitions:

1. What is the **Innovation Imperative**? The Innovation imperative declares the following:

A necessary condition for sustainable development in the nation and the region is that our nations must re-create, must kick-start and must maintain their engines of wealth-creation by establishing effective National Innovation Systems (NIS) that would move original ideas and concepts to commercial reality.

An **Innovation** is a product or process that has satisfied two criteria: it has been created anew; and it has begun to produce returns on investment thus bringing value to society

An Innovation can be in the economic, social or ecological dimensions: the three dimensions of sustainable development. However, the economic dimension fuels the social and ecological dimensions. Wealth generation is necessary for sustainable development.

Innovation can occur at the individual level and at the corporate level. At one end of the **innovation spectrum**, it endows strong competitiveness in products and processes. However, at the opposite extreme it results in the creation of a novel product or process.

The adoption of a more aggressively innovative culture therefore makes for a more robustly creative citizen and, by virtue of its novelty characteristic, strengthens the ability of companies to compete internationally. It also increases the individual's ability to develop SMEs for international markets, thus enabling a shift in our economy to one that is not unlike the German Mittlestand in which 500 1B Euro companies, 4,000 middle-performance companies and over 10 million SMEs each account for roughly a third of German foreign exports.

I propose that the Forex stratification of the Mittlestand provides a worthy reference model for our diversification drive.

I also propose that a high priority focus for the national education system is the production of graduates who would create the swarm of SMEs required to build the Trinbago Mittlestand. I estimate that we need 10 to 20 thousand export-earning SMEs.

2. **Sustainable Development** is development that maintains or improves the current state of society while ensuring that the sustainable existence and the needs of our descendants are not compromised. This requires focused activity in three dimensions: social, economic and ecological. Sustainable development should be the end game for any national development strategy.

Context

I would like now to set some context. A couple of weeks ago a member of staff came to me after I had spoken on the UWI Triple-A Strategic Plan to our staff and asked me if I had ever considered what universities would be like in 50 years. Around the same time, I received a request from the Rotary San Fernando South to speak on a similar topic. As I had no access to a crystal ball, I decided to frame my thoughts on two extreme scenarios for the future.

The worst-case scenario is total societal collapse as characterised by

natural disasters such as catastrophic earthquakes; eruptions; tsunamis, and climate-change effects; or man-made disasters such as over-population; economic



Professor Brian Copeland: The St. Augustine Campus has been mandated to launch its first spin-off company in 2017.

stratification – the divide between rich and poor; poor ecology management; escalating crime; the “missing generation,” and ineffective economic policies.

Historical and theoretical data suggest that societal collapse, as a result of “man-made” disasters, is unavoidable, particularly when there is a high level of economic stratification.

At the other extreme, is the best-case, Utopian scenario with five characteristics.

1. Governance and culture make man-made disasters almost impossible. We would have forged a society virtually free of the current ills, such as crime and all discrimination.
2. In the face of natural disasters our citizens can survive as individuals or small groups and can build and maintain resilient communities that can grow to re-establish societies.
3. We understand and respect the ecology and are effectively resourceful in protecting it.
4. The economy would be buoyed by a robust Mittlestand-like structure, made so by an extremely healthy network of innovation-driven, export-oriented SMEs
5. We would have achieved a sustainable existence.

Today's Reality

The St. Augustine Campus today looks nothing like it did in 1960; although some of the original buildings still dot our landscape. Lost too, is the heady idealism of those pre-Independence students from across the Caribbean. Our young people then had a focus and a mission – to lead these former colonies into full-fledged nationhood. Despite its achievements, many claim that we have fallen short of that goal.

We know that many UWI graduates are facing hitherto unseen levels of underemployment, even in the high-demand professions such as medicine and law. We have accepted the challenge of utilising our resources to help younger generations learn how to survive in the dynamically changing world. In such a world, we believe it

is of the utmost importance that our citizens be educated and trained to meet and beat every challenge that nature or humankind throws their way. They must be endowed with the ability to spot and exploit commercial opportunities, while deriving novel, ingenious, and workable solutions to our economic, societal and ecological challenges. In particular, they would be fully prepared for the spectrum of scenarios defined by the best and worst case. This would be a legacy of self-sustainability.

Such a legacy would be an enduring one. It would obliterate the debilitating cultural impact of slavery and indenturedship. It would determine the ultimate survival and growth of our region.

To build this legacy, we at The UWI, are actively expanding the current ‘education-for-jobs’ paradigm to one that nurtures creativity and innovation and equips citizens for survival in current and future societies.

But we do have a few hurdles to cross.

Hurdles

The biggest hurdle is culture. We have suffered, in more ways than one, from a “plantation legacy” – one in which colonization has stymied what [Lloyd] Best and [Kari] Levitt referred to as an “internal dynamic” resulting in this instance, in an inadequate innovation culture buoyed by an inappropriate education system. This was compounded by what experts call the Dutch Disease, which has resulted from an economy that has historically been too dependent on oil and gas.

In developed nations, whether through serendipity or design, there is a system that ensures that, in the specific case of product or process innovation, for example, new concepts motivated by cutting-edge research are developed and nurtured to the stage of commercialisation. The inherent process connects research through product and process creation; product and process development; and design of production and service support systems through to market deployment. New knowledge is created along the way. Some

of the resulting profits are reinvested to complete the cycle of knowledge-creation and commercialisation. In the US this accounts for 4% of GDP.

In developing nations, a gap exists in this wealth-generation model. Product and process creation and development are non-existent or minimal. Knowledge output at the key research centres, typically universities paid for from the national coffers, freely enter the public domain via academic journals, thus contributing to the global store of knowledge. This feeds the wealth generation engines of more developed countries. Production systems and products for commerce and the associated knowledge (IP) are predominantly procured outside the nation.

Despite our past economic success, the gap defines us as a developing country. It makes us vulnerable to world economic upheavals; it robs us of much needed foreign exchange, deprives us of job opportunities for our citizens and, as it represents poor economic sustainability, places us on a path whose end point is not too far from the worst case scenario described earlier.

This brings us back to the definition of the Innovation Imperative. I suggest that what is needed now more than ever is a properly coordinated and financed National Innovation System, ideally comprised of four elements:

1. Centres of Excellence designed to exploit a few strategically selected technologies and create knowledge advantages;
2. Business development facilities (not funded on a project-by-project basis), e.g. Dubai’s centre for alternative energy; SMEs; entrepreneurs in clusters who can exploit the opportunities created by the Centres or provide D&R ideas to the Centres;
3. A financing system that provides physical and human resources; D&R grants; seed money; Venture Capital and encourages Corporate Venturing; and
4. A local Test and Adopted Market that can be used in feedback and feedforward modes to inform the SMEs and Centres.

The Triple Helix

Such an NIS and the processes associated with the NIS would be the output from meaningful collaboration among academia, industry and government – the Triple Helix – and could serve as a fillip for economic growth in the country.

The partners in the Triple Helix have different yet complementary roles:

- Government would be expected to provide RDI Funding, incentive programmes, a national environment that targets a minimum quality of life that includes, inter alia, significantly lower levels of crime, a better aligned education system and an effective health care system. It should also facilitate ease of conducting business.
- Industry could provide funding for projects of interest, support for project-focused interns, capital for start-ups and process improvement, as well as market, manufacturing and distribution expertise.
- Academia would provide entrepreneurs (primarily students and graduates), new technology, technical assistance, education and training, human capital and partnerships.

The core function of the NIS would be to pull all of this together by providing a framework for coordinating legal, financing, learning institutions, existing and start-up enterprises, marketing to purposefully leverage knowledge in building the innovation spectrum with export entrepreneurship as priority target. The NIS Coordinating Agency (NISCA) must first target the prioritizing of focal areas for R&D investment (foresighting).

Needless to say all of the above has to be predicated on a re-engineered education system delinked from the colonial past and more appropriate to the socio-economic realities facing our country and the region.

UWI’s Innovation Imperative

I would like to summarise how UWI plans to contribute to the national response to the Innovation Imperative. Many of you may know that for some 25 years or so I have been singing the song of innovation-led entrepreneurship; I know first-hand the depth of the challenge in trying to create a supportive university culture. It is particularly difficult when people who are solidly embedded in an existing paradigm, are required to make significant change. That is the challenge facing not just the Campus but the country as well.

That being said, my strategy for this Campus has several components:

1. The UWI will work really hard for an early win. As such, last year I mandated the St. Augustine Campus to launch its first spin-off company by August 2017.
2. Establish an innovation-to-entrepreneurship ecosystem to provide all the support required to move an idea into impactful – and commercial – reality. That ecosystem will include legal, financial, and business development support, all in collaboration with private and public sectors.
3. Target students as a priority, while working with staff, to identify potentially innovative opportunities among the vast array of projects on this Campus. Very conservatively, we would like to spin-off one new company every two years. We would like to see much, much more.



Professor Brian Copeland shows off the Percussive Harmonic Instrument (PHI) to Ronald Hinds, CEO Teleios Systems, and Beverly Khan, Deputy Permanent Secretary in the Ministry of Planning and Development.

Why Innovation Performance HAS BEEN WEAK IN T&T

A view from academia

BY ST. CLAIR A. KING AND MARY K. KING

The eminent economist, Schumpeter, said that an economy develops based on creative destruction as entrepreneurs exploit market opportunities through technical innovations that simultaneously destroy old industries and approaches. This disequilibrium and change brought about by the innovative entrepreneur are the norm in a healthy economy, a sustainable economy. If, then it is concluded that our private sector, our entrepreneurs are weak in innovation or are non-innovative then it equates to saying that our economy is unhealthy, unsustainable.

The Evidence

A recent report by the IDB, “Are oil and gas smothering the private sector in T&T,” took a look at the constraints that appear to beset the development of the on-shore economy of the country. One of the first topics addressed was whether T&T suffers from Dutch Disease. The conclusion was that T&T shows the presence of this disease in an overvalued exchange rate, a falling share of the non-booming tradable sector (manufacturing and export agriculture) and increasing unemployment share of the service sector (non-tradables). The report uses the Real Effective Exchange Rate (REER) and its own adjusted measure, the AREER1, to demonstrate these effects of the disease. For this presentation it is sufficient to indicate two symptoms that indicate overvaluation of the currency; one, the association with the Purchasing Power Parity (PPP), and the inability to meet the demand for imports by the foreign exchange income earned by its exports.

Given the economy of T&T where the major earner of foreign exchange is the energy sector, during a bust it is the norm to expect that the reduced foreign exchange income would be unable to match the demand for imports as during the boom, unless some counter cyclical spending had occurred during the boom. The PPP is of less significance seeing that T&T is a small open economy that imports almost everything it requires. Hence the difference in prices will be the result of transport and distribution costs (markup). The latter could be exorbitant seeing that many people are tending to on-line shopping, given also the low productivity of the on-shore delivery process. Some economists say that the so-called overvaluation of the currency is not the core problem, but possibly an indication of this low productivity.

The problem then is not the overvaluation but what should be done about it. For example, what is the optimum value of the exchange rate that would in T&T’s case bring demand for foreign exchange into synch with the supply? Since the demand for foreign exchange can be reduced by both a devaluation and fiscal means, the optimum decision has to be what mix of these controls can bring about the demand/supply equilibrium. This suggests that there is no unique exchange rate that can fix a so-called overvalued currency since, for example, at the current exchange rate the balance may be achieved by fiscal means alone.



Professor St. Clair King at the Innovation Conference at the Teaching and Learning Complex. Seated next to him is Ronald Hinds, CEO of Teleios Systems Ltd, whose presentation also focused on why innovation performance has been weak, but his was a view from the private sector.

The IDB’s investigation of the on-shore sector turned up the following:

- The on-shore sector’ growth has declined significantly since the global financial crisis.
- Private investment points to declining labour productivity; note this impact on the REER.
- Human capital, access to finance, institutional weaknesses, infrastructure and an overvalued exchange rate are among the main factors contributing to the low levels of investment and low growth; note the impact of low investment on innovation.
- Firm characteristics are mostly unfavourable for increasing sales and total factor productivity, both of which are important if the private sector is to be the driver of diversification, sustainable growth which today depends on innovation.
- The evidence shows that most firms are either stagnant or declining. Many are old firms and family-owned or influenced.

Insufficient investment, low access to financing and human capital by local firms are synonymous with lack of innovation in the private sector, forcing the firms into decay.

The IDB report also addressed the perception of the firms themselves as to the problems of doing business on-shore in T&T. This report was augmented by the results of the 2014 Productivity, Technology and Innovation (PROTEqIN) Survey2. The latter says that the most serious obstacles as seen by the firms were an inadequately educated workforce; access to finance; crime; macroeconomic environment; customs and trade regulations; corruption; cost of finance; tax rates; electricity and telecommunication

inadequacies. According to the IDB, these complaints were very similar to those elicited by the World Bank in its 2010 survey.

One may find it hard to understand why the firms find it difficult to find adequately educated people, given the current education system in T&T. Moreso, the IDB’s information shows that some 79% of the graduate workforce emigrated and are usefully employed abroad. Possibly there is a mismatch between the education system’s output (though other economies find use for them) and what the local firms require. When asked why current graduates are not trained by local firms, the reply was that this is an added cost and even so, after training they may leave the firm. Again, these are the people in these firms who would be expected to drive innovation, the source of sustainable development.

The other input which would restrict growth and innovation in firms is financing. The IDB report quotes the ROSE-C3 review which demonstrated that compared with the rest of small economies of the world, the ratio of domestic credit to GDP is lower than the benchmark for this group of countries. Access to finance is a constraint for most firms. This applies to firms operating in the retail/distribution sector and small startups that are budding innovators. There is little credit, no venture capital or major grant funding, though ExportTT is attempting to help small firms with small grants.

In small, open economies, economic survival depends intimately on the ability to export and today being competitive is a function of the innovation of the firm. In the economy of T&T, outside of the energy sector, not many firms are exporters. The IDB report suggests that large, young and foreign-owned firms in the manufacturing sector are more likely to be exporters. But only a small share of on-shore T&T firms, 14%, reported that a percentage of their sales come from direct exports.

R&D expenditure in T&T is low. T&T spends some 0.04% of its GDP on R&D, the major source of innovation, while the average for ROSE-C countries is 1.2%. Firms claim that they spend some 0.95% of sales on R&D, innovation. But this is focused on non-technological innovation (organizational and marketing). Though public sector support is provided to exporters the evidence suggests that most firms do not benefit and have a great difficulty in achieving export promotion targets. Further innovation expenditure is low and this weighs negatively on the firm’s productivity and export performance.

An Analysis

The foregoing suggests that the economy is defined by a set of variables that say how the economy is behaving, a set of inputs or controls on the economy which drives the state variables, economic behaviour, depending on the dynamics or model of the economy, the outputs of the

economy which are functions of the state variables and finally, on disturbances or exogenous inputs, over which the local economy has no control.

The IDB report discusses qualitatively the impact of some of the characteristics of the on-shore model of the economy, of some inputs on economic behaviour, the state variables. The performance of the off-shore, the foreign exchange earned, is seen as an exogenous input which has a direct impact of the Dutch Disease.

An ECLAC system analysis attempts to quantitatively define such an economic system by mathematically relating the system dynamics to the state variables, the inputs, and hence the impact on the economic outputs. The coefficients of the equations can be estimated by regression analysis of the recorded past performance of the economy in question. This approach was used by St Cyr et al to develop such a quantitative model for the T&T economy. Some of the state variables used in the analysis included; GDP, aggregate supply capacity, public sector debt, foreign debt, money supply, national reserves. The inputs included private and public investments, foreign exchange income, private sector bank credit, current savings and internal Central Bank credit. The system disturbances included price of export commodities and natural resource production.

It was intended to use this model to force the economy to a certain state, to behave a certain way, even drive innovation, by choosing the inputs in specified ways. The problem with this is twofold. First any meaningful results would have to be for a very short term since the model cannot account for any changes in its dynamics; e.g. Schumpeter-like changes and the current dynamics of the model represent all that has already been discussed, e.g. lack of a qualified workforce and financing, no R&D, the preponderance of non-tradable firms as opposed to those that export and the incorrect assumption that any set of state variables is reachable using the defined inputs.

Hence this regression model tells us nothing about how we change the on-shore economic system to respond to say, a drastic change in our natural resources or moreso the identifiable changes or unpredictable ones in the global economy.

The Reconstruction

The evidence and the analysis showed that the current economic model, its dynamics, is/are not adaptive: little R&D, a lack of higher risk finance are both indicators of this. It is of interest to investigate what could have caused such an economy to develop and how indeed can we craft a model that can adapt to the fundamental changes in the local and global environments?

Prof John Foster of Queen's University, Australia, took a more general look at economic systems and saw them

as complex adaptive systems. It is complex in that they are not monolithic, but collections of many, many semi-autonomous systems that interact with each other without some overall control. For example each and every one of us is part of an economic system, all with a certain independence of economic choice and activity, but still interacting with each other's economic sub systems. They are adaptive in that they can change their behaviour in response to changes – slow or discontinuous – in the economic environment in which they operate. However, the fundamental point that Prof Foster makes is that this ability to adapt, to respond to change, can atrophy, be destroyed, given the history of the economy of the players.

In other words, if the history of the dynamics of the economic system has not required the system to change for a long time, then the ability to adapt to change in this economic environment can be impaired. The model of our present on-shore system, its dynamics, reflect the complete history of the island in that certain commodities are produced for the export market and the foreign exchange income is used to import virtually everything that is needed to survive. Many authors have discussed this model, the plantation economy, so much so that this is the economy that has produced the societies of the Caribbean islands. What this model says is that the on-shore economy does not need and has never needed technological innovation to globally compete since it is merely in general about import-markup-sell locally. Even the IDB report shows that existing firms are stagnant or declining and the evidence points to declining labour productivity. Further, the report says, that though we need to look to the private sector to become globally competitive in exports, the existing companies will be unable to match up to the task, to adapt to the changing local and global market circumstances.

The commodity sector has changed over the years from agriculture to oil and now to natural gas. Another change is that the commodity sector initially needed the lion's share of the available labour, today it only employs some 4% of the workforce. One result of this is the need to provide on-shore jobs with the demand for enhanced social services – make-work provided by government resources.

The incapacity in our economic environment, and one that has been expected for years, is the inability of the energy sector to provide in the long term the foreign exchange to satisfy the demands of the on-shore. In the past the boom-bust nature of the global market for commodities shaped the economic on-shore activities, since the few busts were followed by a boom, which seems to be expected again. However, the depletion of the natural resources and the long-term outlook for low petroleum prices suggest that the off-shore will be increasingly unable to deliver the required foreign exchange. The fundamental failure of the

current on-shore economy is that it has traditionally little use for innovation and hence the need to produce globally competitive exports.

T&T's economic system has to have this dual adaptive ability – distributed and quickly responsive through semi-independent agents, and the ability to plan centrally and develop strategy. Hence the players either learn to adapt – create adaptive systems – in the sure circumstance of depleting energy resources and the uncertainty of the global economy, or fail.

In today's world where knowledge and R&D are vehicles for doing new things, the establishment of centres of excellence can help the adaptation process via the creation of innovative commercial enterprises and spillovers, all the while creating the knowledge and skills to respond quickly to an opportunity. In this stage of economic unpredictability all we can and need to do is develop the observational ability to notice change very quickly and respond. We need many ways to respond instead of deciding a priori on what is optimum.

Hence the country's innovation system has to possess semi-autonomous redundant systems, various centres of excellence and a cadre of researchers that can respond to these signals, so developing a store of knowledge and techniques for use and re-use. This adaptive system has to establish interconnections and channels of communication (marketing/market development) such that multi-faceted challenges can be addressed using an integrally connected agent network. The major lesson here is that it is useless spending time to develop predictive models and optimising routines in an unpredictable world, in an unpredictable global market. But the bigger challenge ahead is how to prepare and respond effectively via creating an abundance of flexibility and skills that can be combined to meet the challenges ahead – centres of excellence provide the training environment – the Innovation Diamond⁴.

Though we are familiar with the Triple Helix of Eztkowitz model of the triad of government, academia and the private sector which can create an adaptive and innovative economy, one of the partners of the T&T's triad, the current private sector has all but disqualified itself, possibly because of its history. Other countries have found themselves in this position and in particular the Chilean Government opted to teach its private sector how to adapt as it built its world class salmon farms. Hence the task facing T&T is: should the current private sector be taught as Chile did, or rebuild the private sector especially since financing for the adaptation will be at a premium?

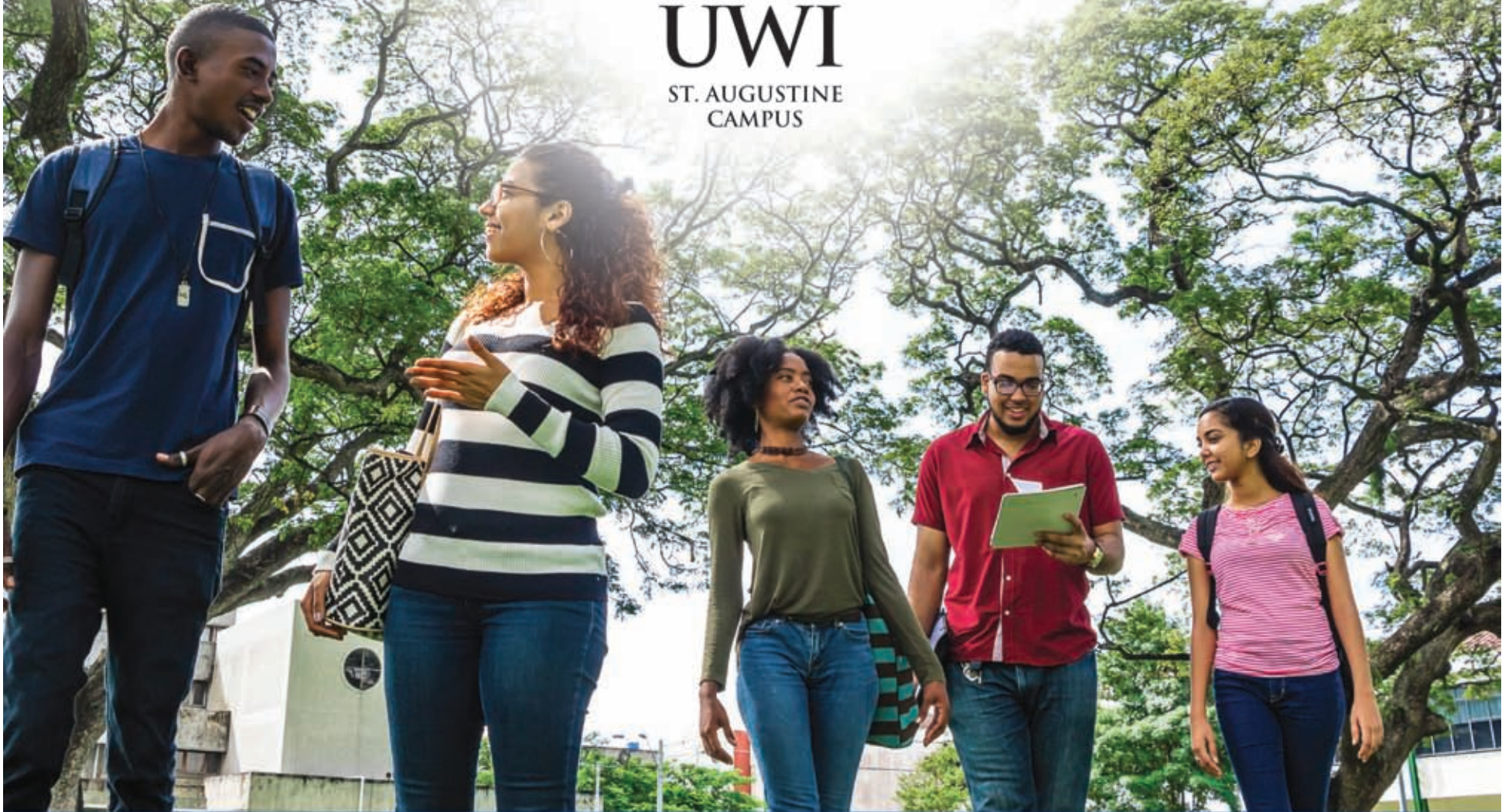
St. Clair King is an engineer, and Mary King, an economist. This is an abridged version of what was presented by Professor St. Clair King at the Innovation Conference at the Teaching and Learning Complex.



“The incapacity in our economic environment, and one that has been expected for years, is the inability of the energy sector to provide in the long term the foreign exchange to satisfy the demands of the on-shore.”



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Private sector must lead DIVERSIFICATION CHARGE

BY DR. TERRENCE FARRELL



Dr. Terrence Farrell, Chair of the Economic Development Advisory Board spoke on the Draft Diversification Strategy and emphasized his point that the private sector should take the challenge to lead the process.

Who drives?

I do not rule out foreign direct investment in areas outside of Energy. It is important that we remain open to foreign direct investment. However, I do not see foreign investors as the key to the kingdom. Our firms also have to pursue investment opportunities overseas in financial services, energy services and food and beverage manufacturing. Foreign direct investment should flow both ways.

What about Government?

Government has to get the macroeconomic balance right; it has to promote the right incentives and apply the right disincentives to shape private sector behaviour. It has to regulate markets efficiently, fairly and, in limited areas of strategic significance, it should be investor or co-investor in certain business opportunities. To use Eric St Cyr's phrase, it must 'hold the ring' and allow the players inside to perform. Its role is active and dynamic, but in respect of developing and serving market demand, supportive and not leading.

Local private sector

I am advocating strongly that our local private sector must lead the diversification effort across a broad front. I know this is likely to be controversial. Since the 1970s, the political directorate and the public service have not held the local private sector in high regard, and the feeling is largely mutual. It is why when oil revenues became available in the 1970s the Government stepped up to play the role of 'prime mover' in the economy. The relationship between the public and private sector is also overlaid with ethnic considerations – the elephant in the room.

My argument for the local private sector is pragmatic. The local private sector has better management capability, stronger marketing skills, superior discernment of business opportunities and access to some amount of capital. They understand the global marketplace, albeit mostly as importers, distributors and franchisees.

Their weaknesses are that, with few exceptions, they have not taken the risks of selling into or investing overseas, and they are largely oblivious to the need for R&D and technological innovation, because their businesses have never required them to be innovative. Many are completely reliant on government spending for their business success.

It is better for us to work with the private sector to overcome their weaknesses and enhance their strengths than to condemn them as merely parasitic and exploitative.

How do we do this?

The first requirement is that we develop a sophisticated understanding of the global marketplace. We need to invest in the capability to discern trends in consumption in areas

in which we may be interested. In order to accomplish this, we have to

- (a) harness the Diaspora which is potentially significant not only as markets but also as providers of skills and knowledge, capital, and through their relationships, providers of access to markets for our goods and services;
- (b) leverage relationships, personal, professional and through economic and commercial diplomacy; and
- (c) monitor closely economic, social and political developments in China, India and Africa, as well as in our traditional markets in the USA, EU and UK. While government ministries – Trade and Industry and Foreign Affairs – would be integrally involved along with agencies such as ExporTT and InvesTT, the private sector should be engaged to collaborate in sharing intelligence and perspectives on products and markets.

The second requirement is that we invest in innovation for competitiveness. Innovation is central to competitiveness and competitiveness is key to successful economic diversification. We have to accelerate innovation and competitiveness on the basis of three initiatives:

- (a) research and development activity within centres of excellence appropriately staffed, resourced and funded and which target specific areas of technology;
- (b) supporting innovation by individuals and firms by providing support, training and guidance, and effective incubation; and
- (c) institution of a system of governance which encompasses intellectual property management, commercialisation, and the management of research and development.

The third requirement is that we have structures for effective collaboration and where necessary coordination of initiatives between the Government and the private sector. I am hopeful that the Economic Development Advisory Board, along with agencies such as InvesTT, TTIFC and ExporTT, can play that role.

Alternative Paths?

There are certainly alternative paths to the mountain top of a diversified economy. A believer in industrial policy would not subscribe to my iterative, interactive process for identifying opportunities, but would identify those by other methods. She might argue that government must lead by investing in the areas identified, that there is no need for the elaborate scanning of the international marketplace, nor for collaboration with the local private sector.

There is much room for debate and discussion of

alternative paths. I would merely point out that none is going to be easy.

From here to there

Diversification requires planning and hard work across many fronts. It is going to be hard to achieve because first, we have to make the necessary adjustments to stabilise the economy. Unless and until the economy is stabilised, neither business nor consumer confidence will be sufficiently high to support the investments that will be needed to grow the economy.

Second, we have to overcome the powerful forces which would keep the economy highly dependent on oil and gas.

Third, diversification is dependent on what the private sector does or does not do. It is the private sector which has to step up, to change its mindset from commerce to industry, from focus on the domestic market to focusing on the global market, from avoiding risk in new ventures and technologies to taking on selectively and sensibly risks that could lead to expanding the portfolio of goods and services we produce which find their way into the global marketplace.

While some leaders in the private sector seem prepared to step up and step out, there are still too many who immediately and instinctively look to the government to spend oil revenues on projects or provide land for their projects which produce profits but which earn no foreign exchange, stimulate no innovations and are supported by banks which themselves prefer certain kinds of lending, take little or no risk.

Fourth, diversification will depend on trusting collaboration between the Government and the private sector and the cooperation of the labour movement as jobs are redefined and new industries emerge. I would like to position the Economic Development Advisory Board to assist in bridging the trust gap and the collaboration gap between the Government and the private sector and the labour movement. I think that that work of building bridges of understanding and collaboration, starting with small defined projects or interventions, is as critical to the success of diversification as getting the economic incentives and institutions right.

*This is an abridged version of a presentation, **Roadmap to a Diversified Economy**, made by Dr. Terrence Farrell, Chairman of the Economic Development Advisory Board, in October 2016.*

For the full document, please visit the website at <http://edab.org.tt/>

Dr. Farrell spoke on the same subject at the Innovation Conference held at UWI St. Augustine.

CODE GLUE

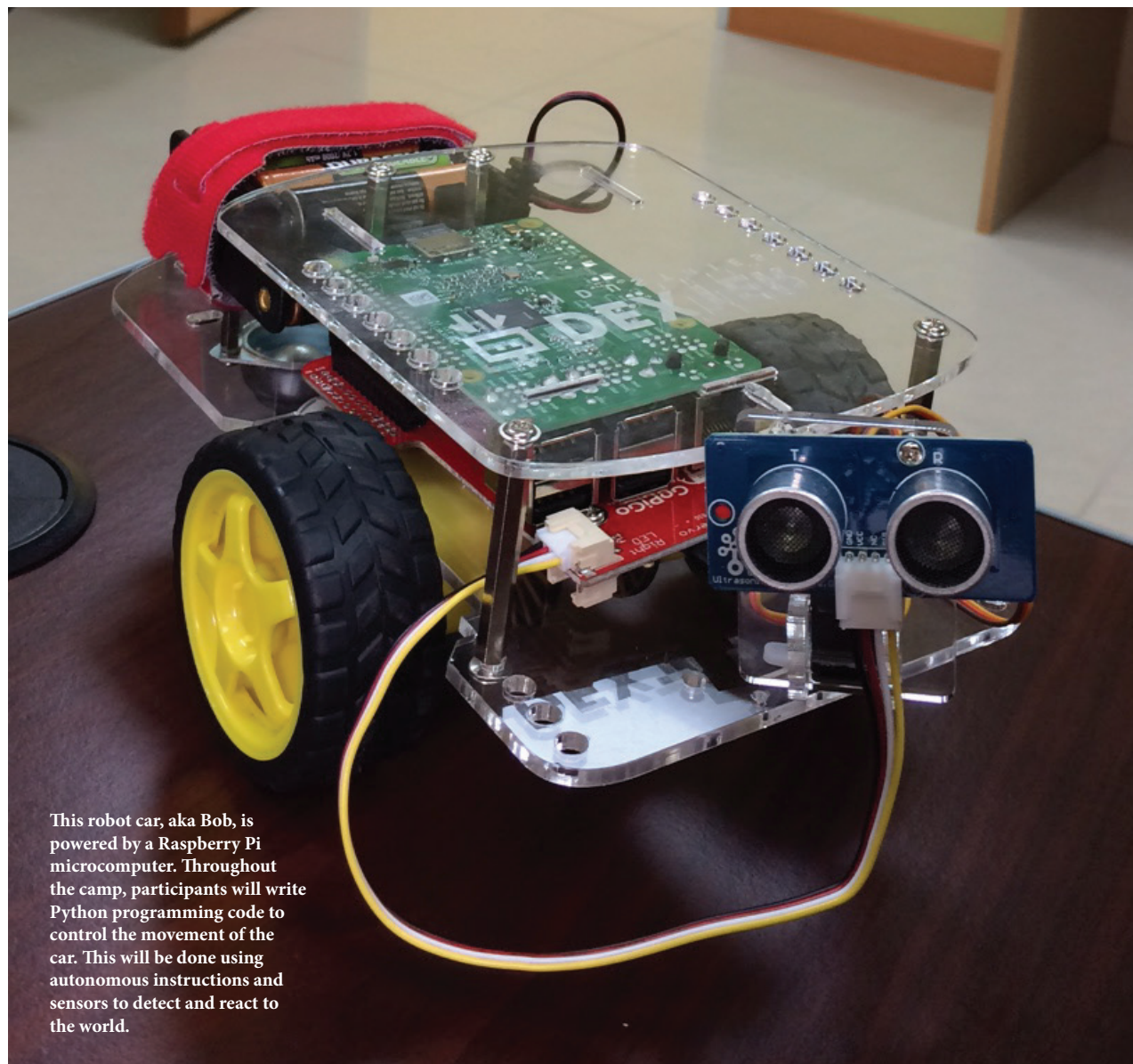
Boot camp hopes to boost interest in computer science

We live in a world surrounded by technology. Computer Science (CS) and Information Technology (IT) are foundational fields in every 21st century industry, career or field of study. Software powers our economy, drives innovation and research, and supports every aspect of our lives. There is a great shortfall of CS and IT professionals globally as more jobs are being created than can be filled. CS education is not at the forefront of the curriculum in our schools in Trinidad and Tobago. Many schools do not even offer computer programming classes, and students are not encouraged to consider career paths in CS or IT despite the worldwide dominance of the field.

The Department of Computing and Information Technology (DCIT) is preparing to take on this challenge through a variety of programmes and events aimed at educating, engaging, and inspiring the region's youth to get involved in CS and IT. The first of these initiatives is the Annual Computing Boot Camp which targets secondary school students from Forms Four to Six. The 3rd edition of the camp will be held at UWI St. Augustine from July 17-21, 2017, and the theme this year is "Code: The Glue that Connects Everything."

Research has shown that CS education promotes the development of problem-solving skills and fosters innovation and creativity in students. These are the core principles behind the vision of the camp. From 9am to 4pm, the camp's participants will be introduced to the power of CS via interactive sessions on Python programming, physical computing, robotics, and web design. The programme is specifically designed to immerse the students in the foundational aspects of computational thinking in practical and interesting ways. Students will have hands-on access, from the first day, to programmable robot cars and will work in small groups throughout the camp, mentored by undergraduate and research students, on exciting projects featuring the Raspberry Pi microcomputer.

In addition, the participants will have direct access to faculty members and research students from the DCIT, and industry experts from local and international companies for discussions on career guidance, undergraduate CS and IT degree programmes at UWI, and real-world experiences from the field. Some of the speakers include Dr. Permanand Mohan, Head of the DCIT, who specializes in research on advanced technologies for education and health; Mr. Dylan Marin, from the Special Anti-Crime Unit of Trinidad and Tobago, who will speak on Computer Forensics; and Ms. Wendy Sang from Medullan. Several PhD and Master's students will also be there as instructors and mentors. Participants will therefore have the opportunity to explore the details of a wide variety of CS research areas through one-on-one discussions with their instructors and mentors during breaks. Some of these areas include Artificial Intelligence in Education, Adaptive Video Streaming, Steganography/Information Hiding, Machine Learning,



This robot car, aka Bob, is powered by a Raspberry Pi microcomputer. Throughout the camp, participants will write Python programming code to control the movement of the car. This will be done using autonomous instructions and sensors to detect and react to the world.

and Social Network Analysis. Leading-edge research project demonstrations, on-campus tours to the DCIT data centre and Alma Jordan Library, and a full afternoon of social activities, competitions and games round off the programme.

No prior knowledge of programming is necessary as the camp is open to any student interested in learning about the CS and IT fields. The cost of the camp is \$1300 and covers all camp material, a welcome kit, t-shirt, lunch and snacks. Scholarships covering the complete cost of the camp are also available for those who require financial assistance. Limited spaces are available, and students can apply for entry to the camp online at <https://sta.uwi.edu/fst/dcit/DCIT_Bootcamp_2017.asp>. Applications must be received by July 11, 2017.

The DCIT offers undergraduate (BSc) and postgraduate (MSc, MPhil, PhD) degree programmes in Computer Science and Information Technology. Some ongoing DCIT activities are the DCIT Runtime competition, Student Research Symposium and the Meet and Greet Student Workshop for prospective undergraduates. For more information, please visit <https://sta.uwi.edu/fst/dcit/> or contact the secretariat directly at 662-2002 Ext. 83098/83640 or via email at dcit@sta.uwi.edu. **For more information on the Computing Boot Camp, emails can be sent to DCIT.Bootcamp@sta.uwi.edu**

“Many schools do not even offer computer programming classes, and students are not encouraged to consider career paths in CS or IT despite the worldwide dominance of the field.”


 ■ COMMUNITY

A Language for the *Displaced*

Refugees get help to find their voices

BY DIXIE - ANN BELLE

“In 2014 the government approved a refugee policy and that policy is still being implemented and there is no legislation yet, so it’s still not a government responsibility.”



Dr. Renee Figuera

As citizens across the globe commemorated World Refugee Day on June 20, the thoughts of many in Trinidad and Tobago were turned to people in far off countries who have been displaced from their homes and are struggling to find a new life. What may be surprising is that the refugee crisis is also directly affecting our society. While it may seem distant, walking

among our citizens is an almost invisible population of refugees. For those involved in the U, We and Refugees programme, their plight is very real, and they are working to sensitize our communities.

This is the first time this programme is being implemented at The UWI. Dr. Renee Figuera, Coordinator, Teaching English to Speakers of Other Languages (TESOL) programme and U, We and Refugees Project Coordinator, conceived the idea of teaching English to refugees, and proposed it to the Living Water Community. Romulo Guedez, Instructor and Advertising and Logistics Coordinator of the programme suggested offering service learning courses through the Office of Community Engagement.

Dr. Figuera says, “It made sense for the TESOL programme to be involved,” because of the importance of language, “in areas of inequality and areas dealing with access and marginal populations.” The programme offers an 8-week English as a second language (ESL) immersion experience that emphasizes listening and speaking. The stakeholders hope it will be a valuable resource for people who face many obstacles locally when it comes to language.

Dr. Figuera explains, “Our emphasis is on integration. Our emphasis is on empowerment.” Guedez notes that the programme gives the opportunity “to facilitate their integration in our society by specifically overcoming the challenges derived from language barriers.”

“They are becoming resilient by equipping themselves with English,” observes Dr Amina Ibrahim-Ali, Coordinator of English as a Foreign Language (EFL) at the Centre for Language Learning.

The programme has brought together TESOL of the Department of Languages and Linguistics; the Living Water Community; the Faculty of Humanities and Education; the UWI Office of Community Engagement and the Humanitarian Association of Trinidad and Tobago.

Rochelle Nakhid, Coordinator, Ministry for Migrants and Refugees of the Living Water Community (LWC) is very familiar with the difficulties of the refugees. Though the number can fluctuate, an average of 700 refugees are in Trinidad and Tobago at a time. The majority come from Cuba, then Venezuela, followed by Syria and Bangladesh. The LWC works with the United Nations High Commissioner for Refugees (UNHCR) to provide protection which means “everything from providing shelter, mediation, providing food, liaising with the government, liaising with immigration, providing training, capacity-building for government, civil society, etc.”

The lack of a local refugee policy is a major obstacle.

“In 2014 the government approved a refugee policy and that policy is still being implemented and there is no legislation yet, so it’s still not a government responsibility,” said Nakhid.

Progress has been made since the UNHCR stationed a representative here “to ensure the implementation of the policy and to ensure the handover of refugee status determination to the government and protection in general.”

Discussions are in progress to determine the roles of the various entities involved including the Immigration Division, but as Nakhid explains, “At this point it’s still a UNHCR and LWC responsibility, so in the absence of that legislation, we’ve operated more or less on a good faith relationship.” In the meantime, the status of many refugees remains unstable.

The policy contains recommendations like providing the right to work, education and health, but they are not guaranteed. In the face of increasing needs, the LWC is working with entities to relieve the situation.

These efforts could make a big difference to the refugee population. “We can live without food and the new clothes, but education is very important,” states Paul (not his real name) who came from Pakistan with his wife and children. Paul’s command of English is so good he volunteers to assist other refugees. Despite their daily difficulties, he is optimistic about his family’s future. “This country is very good maybe 200% better than our country... Over here wherever we go people greet us with open hands and open hearts in our church.”

Paul seems to characterize the feelings of many refugees in the programme. Guedez observes that “they appreciate and value the effort that has been done to bring alive these ESL classes to support them.” In addition, the 14 TESOL trainees who work with them are gaining important practicum experience as well as exposure to non-homogenous groups. The trainees designed the curriculum and have even contributed some funds to help pay for supplies. Volunteers assist in organization and implementation of co-curricular activities.

All involved are concerned about the need for local sensitization. Dr. Figuera talks about the pervasive stereotypes which exist. For example some suggest that refugees strain local resources when in fact they are often highly educated and willing to work. “It’s raising awareness that the ordinary person in the neighbourhood ...also has a role when it comes to resettlement because even things like attitudes of openness or being completely closed can certainly make a difference. It’s a partnership of persons with a common cause.”

“I think that if we were in that situation... and we had to be pushed out of our country and we feared death or some kind of destruction, some kind of oppression...we’d want somebody to help us, and I think that human kindness can go a long way,” said Dr. Ibrahim-Ali affirms.

■ For more information contact 662-2002
Exts. 82036, 84309 or u.we.and.refugees@gmail.com

Dixie-Ann Belle is a freelance writer and copy editor

Engineer of the Stars

Anil Kokaram makes movies better

BY VANEISA BAKSH

Nearly 20 years ago, the Department of Electrical and Computer Engineering at UWI St. Augustine, struck up an informal collaboration with Dr. Anil Kokaram, who was then a Senior Lecturer and Fellow of Trinity College Dublin. The initial project was to establish a research collaboration on Video Retrieval for Distance Education and Broadcast, which took off in 2001.

Since then there have been a number of exchanges between the groups.

It was natural then for DECE's Dr. Akash Pooransingh, who did his PhD under the supervision of Professor Kokaram and Dr. Cathy-Ann Radix, to circulate a notice that Professor Kokaram would be delivering the Rudranath Capildeo Lecture at the Central Bank Auditorium on July 7. His topic was "Understanding the Technology of Digital Video and its Impact on Everyday Life."

"In his talk he shall make mention of some applications that may be of benefit to the country and region," wrote Dr. Pooransingh.

Looking at the online links to Professor Kokaram, I realized he was the person who had won an Oscar ten years ago. He was only 39 and not yet a professor when he jointly won the Scientific and Engineering award from Hollywood's Academy of Motion Picture Arts and Sciences for work on the design and development of Furnace, an integrated suite of software plug-ins used to enhance visual effects in movie sequences. Apparently, these are now widely used in the industry for motion-based effects and quality improvement (The Matrix, The Lord of the Rings, King Kong, etc.).

He was obviously very interested in cricket, and was working on cricket-related software, so although I knew we would not be able to have coverage of the lecture in this issue of the paper for deadline reasons, I sent him a few questions out of curiosity about this Sangre Grande boy who had become a rock star.



VB *Digital Image Sequence Processing, Motion Estimation, Content Based Image Retrieval and Motion Picture Restoration are some of the areas of your expertise. Apart from the engineering science it involves, it speaks to a particular interest in film and movies. Was it a passion for cinema that drew you into this field? How did you get to this specialty?*

AK Well spotted. These areas are linked by the study of information extraction from signals or Digital Signal Processing. I got inspired to get into that area when I sat in an undergraduate class in second year in Cambridge and the guest speaker spoke about restoring old gramophone recordings using DSP. Combined with my habit of going to the cinema any chance I got growing up and in University ... when I was offered a sponsored studentship to develop similar techniques for restoring old movies, I jumped at the chance.

VB *Some of the online articles on your career mention an interest also in cricket-related technology, what has been the nature of your work in this area?*

AK I started this back around 2002. I wanted to generate automated summaries of cricket matches from recorded broadcasts. So I had a couple of postdocs and PhD students work on extracting motion information from the broadcasts that let us figure out how to spot when the bowler was running up and which side of the wicket the ball

was hit on. Then I started getting interested in making it easier to use video in cricket coaching sessions. So we developed some techniques using motion again to spot each bowler/batsman action in a net so the coach could review it automatically without having to rewind manually ... I called it "Last Action Replay." The reason for all of this interest is because my family all follow cricket and I was running the staff team at Trinity for some time. So it made sense to combine work with more personal interests. I was not that keen on using video for biomechanics analysis of cricketers because I figured that there was enough work about that going on. What was missing and what is still missing is a way to make it easy to use video for the non-expert during a net session.

VB *How did winning an Academy Award for Science and Technology in 2006 change your life?*

AK I guess people take me more seriously now. It was a fantastic experience and on the back of that I have been able to meet with many very accomplished technologists in cinema and video technology. Google became interested in my small company on the back of that award and eventually acquired it in 2011. That changed my life a huge amount: giving me a much wider vision about video technology and its impact on people.

VB *The subject you chose for the Rudranath Capildeo Lecture was Understanding the Technology of*

Digital Video and Its Impact on Everyday Life, can you share some elements of that talk?

AK It's about how movies are made, how they are distributed and how information can be extracted from video. I mention how Capildeo's work is part of a huge body of literature which informed the creation of the spectacular special effects in the movie "Interstellar." I'll show a bit about how movie production now uses both 3D and 2D ideas to make productions and how that same information can lead to the ability to extract information from video ... e.g. cricket.

VB *Your parents are both well-known educators in Trinidad, how would you describe your childhood years in such an environment?*

AK I guess I was always focussed on school and academics. It seemed natural to me to consider a career in research as a thing to do. It was great fun looking back on it. I made many good friends at Hillview College and I am in touch with a couple even today.

VB *You are still very young, on the cusp of fifty, what next for you? If you could freely choose your ideal lifestyle, what would it entail?*

AK Tough question. I am just figuring that out now. I'll let you know when I get to 51.

Whatever We Eat, We Draw

Food meets art for preschoolers

BY SHERRY ANN SINGH

Rena Jangeesingh-Nunes is a mom on a mission.

The early childhood educator attached to The UWI School of Education's Family Development and Children's Research Centre has found a way to get picky preschoolers amped up about healthy eating.

And she wants to pilot her project among three- to five-year-olds across the Caribbean.

"I work with fussy eaters every day and I saw an opportunity to develop healthy eating habits in children from an early age using art as the medium of expression," she said.

"I know that children love visual art, they love performance, they love poetry... and I decided why not do something like that to promote healthier lifestyles?"

From this was birthed the idea for The University of the West Indies' School of Education Family Development and Children's Research Centre's (UWI-FDRC) "Caribbean Food Revolution Food and Art exhibition 2017".

Held on May 10 at the Faculty of Education, the exhibition was spearheaded by Rena herself, marshalling a small army of hyperactive tots, enthusiastic staff members, proud parents and other collaborators.

The exhibition aimed to foster healthy lifestyles and eating habits from pre-school to adulthood by building bridges connecting different stakeholders who share a similar vision. Ultimately, the objectives are to:

- achieve greater awareness of eating healthy local foods
- create avenues for open communication and dialogue with professionals in the field of Health, Nutrition and Wellness
- develop local nutritious recipes
- help children & families make healthy choices

This dovetails nicely with the very mission of the UWI-FDRC. The Centre has been a model for developmentally appropriate early childhood care and education (ECCE) both locally and regionally. It provides training for future early childhood professionals and frequently conducts workshops for parents and the wider ECCE community. The closely aligned UWI-FDC generates research with an aim of improving the life outcomes for children of Trinidad and Tobago and the Caribbean.

Its mission statement prioritizes the critical early childhood development needs of the Caribbean through a model teacher development unit, policy-oriented research and complementary early childhood services to families and their communities.

It promotes nation building via poverty eradication, exemplary parenting and curriculum reform and development in early childhood care and education.

Even so, the innovative Food & Art Exhibition idea was too big to be confined to the School of Education's Family Development and Children's Research Centre. Rena enlisted other schools to participate, recognizing that the initiative needed widespread support from a multiplicity of partners to succeed and continue thriving.

And there is no doubt the first-time Exhibition was a triumph given the crowds that thronged the School of Education. They were greeted by an innovative display



Students checking out the healthy food on display.

of artwork, all created by preschoolers: 3D replicas of banana and other trees, an eggplant made from socks, a pumpkin patch made of plastercine moulding clay, and two-dimensional representations of the dasheen plant. Food inspired collages and poetry completed the artistic showcase of the works of seventy students.

The exhibition also featured the 'Farm to Table' Approach whereby healthy, tasty meals were created from local food crops grown by the pre-schoolers themselves.

Farm to Table is a social movement advocating for local, seasonal, fresh and organically-produced foods and has been promoted by both farmers and Chefs as a means to connect consumers to the source of the ingredients in their meals.

"At the Children's Centre we grew food crops utilizing seedlings obtained from experts who visited us on World Food Day," Jangeesingh-Nunes said. "We practice the farm to table approach – we grow the food, reap it and eat it. Then we go a step further – whatever we eat, we draw."

Other attractions at the Exhibition included professionals in their fields conducting food demos; health screenings such as vision testing, Body Mass Index, blood

pressure testing and dental examination; and booths offering samplings of healthy food products.

Thrilled that the pioneering initiative was both enthusiastically received and well attended, Jangeesingh-Nunes acknowledged the contribution of various supporters including the families of preschoolers enrolled at the Children's Centre, members of staff, schools within the St. George East district, professionals in the Health field and the Department of Food & Agriculture.

Indeed the Food and Art Exhibition made such an impression there is already interest from external stakeholders to further develop the initiative, with one such potential partnership being with the University of the Southern Caribbean.

Acknowledging the diversity of indigenous plants and cuisine, Jangeesingh-Nunes said this combined with the Centre's innovation-driven need to reach people offered an even broader vision for Healthy Lifestyle Promotion.

"We have so much to offer the world," she said. "My vision is to start in Trinidad and Tobago and then expand to the different islands. The intention is to repeat the exhibition but not in the same way. It will grow and evolve."



The Caribbean Food Revolution Food and Art exhibition 2017 was conceived by Rena Jangeesingh-Nunes, an early childhood educator.

"I work with fussy eaters every day and I saw an opportunity to develop healthy eating habits in children from an early age using art as the medium of expression."

UWI CALENDAR of EVENTS

SEPTEMBER – OCTOBER 2017



IGNITE THE BRAIN

September 29
Daaga Auditorium
The UWI St. Augustine

The UWI Guardian Premium Open Lecture 2017 will be delivered by Dr. Lodge McCammon, International Education Consultant, on the topic, “Ignite the Brain: Is Flipping the Answer?” The Flipped Classroom involves inverting traditional teaching methods by having content delivered virtually, allowing for greater interaction/activities during face-to-face class time. Dr. McCammon is an interactive keynote speaker and independent educational consultant who specializes in using a video-based Flipped Classroom delivery method. He has been instrumental in re-designing curriculum at North Carolina University and Rutgers University in the USA; and guiding faculty in flipping their classrooms through the development of small video segments.

Persons interested in attending can contact The Centre for Excellence in Teaching and Learning (CETL) at cetl@sta.uwi.edu.

TECHAGRI SUMMER CAMP

July 10 to August 4
DCFA Agostini Street
St. Augustine

The Faculty of Food and Agriculture (FFA) presents the techAGRI 2017 Summer Camp for young growers (9 to 12), future farmers (13 to 15) and agri-innovators (16 to 19). The camp is part of the ADOPT (Agriculture Demonstration of Practices and Technology) project funded by The UWI-Trinidad and Tobago Research and Development Impact Fund. The camp features activities such as solar aquaponics, greenhouses, farm visits, culinary skills and much more. The cost is \$1200.

For more information, please visit the Campus Events Calendar at www.sta.uwi.edu/news/ecalendar.

AIA MEMORIES DISCOVERY CAMP

July 10 to 29 and August 7 to 19
DCFA Agostini Street.
St. Augustine

Arts-in-Action (AiA) hosts its Annual Discovery Camp for children between the ages of 5 to 12 under the theme, Memories – dedicated to the lives and work of cultural icons present and past. The camp takes place in two cycles: July 10 to 29 and August 7 to 19 and takes place Monday to Friday from 9am to 3pm. Cost: July Cycle (3 weeks): \$1200 inclusive of \$150 non-refundable registration fee; August Cycle (2 weeks): \$850 inclusive of \$150 non-refundable registration fee.

For more information, please visit the Campus Events Calendar at www.sta.uwi.edu/news/ecalendar.

UWI LIFE 2017

September 1
The UWI St. Augustine

New students and their supporters get to experience UWI at the holistic orientation programme entitled First Year Experience with the Student Orientation taking place from 9am to noon and the Support (for parents, guardians, student supporters) Orientation taking place from 5 to 7pm. An information village will be open from noon to access information from the support services on campus. The campus kicks off its official 2017 orientation programme with informative sessions about all things UWI-related, from the faculty, halls, library, guild and more. Administrators will be on hand to ensure a smooth transition for incoming students and their support network during this exciting juncture in their lives.

For further information visit www.sta.uwi.edu/fye.

THE UWI DEF GOLF CHALLENGE

September 24
Millennium Lakes Golf and Country Club

The UWI Development and Endowment Fund (The UWI DEF) presents their Golf Challenge, fundraising tournament at Millennium Lakes Golf and Country Club. Teams can compete for the top three places and be eligible to win an engraved Challenge Trophy. The tournament fee is \$4,500 per team.

For more information, please visit the Campus Events Calendar at www.sta.uwi.edu/news/ecalendar.

CONFUCIUS INSTITUTE DAY

September 29
JFK Quadrangle
The UWI St. Augustine

The Confucius Institute at UWI St. Augustine joins in the international celebration of Confucius Institute Day commemorating their role as one of over 400 of these unique non-profit public institutions established by the Office of Chinese Language Council International (HANBAN) for the promotion of Chinese language and culture. The theme for 2017 is China Kaleidoscope. Enjoy a day starting from 10am to 2.30pm experiencing Chinese culture, learning about travel and study in China and enjoying performances such as Tai Chi, lion dance and more. The event takes place at the JFK Quadrangle.

For more information, please visit the Campus Events Calendar at www.sta.uwi.edu/news/ecalendar.

GRADUATION CEREMONIES

October 26 to 28
Sport and Physical Education Centre
The UWI St. Augustine

Celebrate the graduating Class of 2017 at this year's Graduation Ceremonies at The UWI Sport and Physical Education Centre (SPEC).

For more information and updates, please visit <https://sta.uwi.edu/graduation/>.

**UWI TODAY WANTS
TO HEAR FROM YOU**

UWI TODAY welcomes submissions by staff and students for publication in the paper. Please send your suggestions, comments, or articles for consideration to uwitoday@sta.uwi.edu

