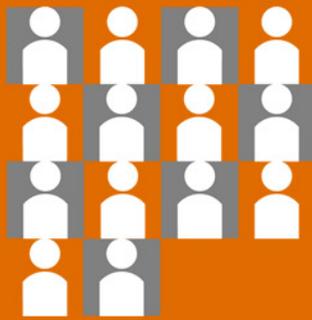


XIV



Resúmenes

**XIV Encuentro de Investigadores
4 de marzo de 2016**

Abstracts

**XIV Researchers' Annual Meeting
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Applied Engineering

Load measurement in knee implants using piezoelectric material

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The presentation explores the feasibility of a new sensing platform for knee implants diagnostic using a piezoelectric material. The device is to be located between the tibia trays of the implants whose purpose is to measure force and send the reading wirelessly to an external receiving unit. This implementation, if successful, will not require any kind of battery since the piezoelectric generate enough energy to transmit the measurements.

Evaluation of Occupational Risks in the Operation and Installation of Small Wind Turbines

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The research reviews the occupational risks within the operation, installation and maintenance/repair stages applicable to a small-scale wind energy system, for a public sector application. One of the objectives of the research is to identify the risk factors associated to the accidents during the lifecycle (this lifecycle comprises the stages previously mentioned) of the system to recommend alternatives that mitigate or minimize these risks. The research includes various reviews of literature for findings in large horizontal wind turbines to serve as baseline for the number and origin of common accidents. The process of coming up with suggestible alternatives to safely perform the tasks during the lifecycle will consider both human factors and quality management techniques, such as Job Safety Analysis (JSA) and Failure Mode and Effect Analysis (FMEA). The alternatives will suggest on tools, protective equipment, postures and working methods. The results of the research will assist in designing an appropriate general procedure to assemble, maintain and repair the turbine safely while minimizing ergonomic risks. Once the ergonomic procedures are in place, the workers may securely execute the many tasks involved within the lifecycle of the system.

Mechanical Properties of Adaptive Manufactured Components

Robles, Ronaldo

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The emergence of additive manufacturing (better known as 3D printing) technology has introduced significant changes in the way components are manufactured. The objective of this research is to study the mechanical properties of additive manufactured components. The study considers Acrylonitrile Butadiene Styrene (ABS) and Polylactic Acid (PLA) test specimens printed from an Afinia H480 3D printer, printed a two different filament angles, 0° and 45°. The mechanical properties being tested are young's modulus, yield and ultimate strength. The mechanical properties determined from ABS was a young's modulus of 5.2 GPa, yield strength of 6.8 MPa and an ultimate strength of 6.4 MPa. PLA showed the best mechanical properties with a young's modulus of 7.8 GPa, yield strength of 8.2 MPa and an ultimate strength of 8.3MPa. This study helps to determine the material that will be used to produce the prototype of the wind turbine being design by Juracán Energy Team for the Collegiate Wind Competition.

Modeling the microwave heating of heavy oil reservoirs through coil tubing waveguidesCallarotti Roberto¹; Páez Eduardo²¹Universidad del Turabo, Gurabo, PR; ²National University of Singapore, Singapore

We present the analysis of the propagation of electromagnetic high frequency (~5 GHz) waves through coil tubing pipes from the surface of the earth to heavy oil (API density ~10) reservoirs. The circular waveguide analyzed has variable wall thickness corresponding to variable inner diameters characteristic of coil tubing. This work was preceded by our measurement of the oil characteristics at these high frequencies: real relative permittivity of 2.3 with a loss tangent of 0.00117. These measurements were obtained for oil samples enclosed in high purity quartz vials located in an aluminum cylindrical resonator excited at the TE₀₁₁ mode (1). In order to calculate the heating of reservoirs via microwaves through coil tubing we analyze the effect of the change of inner diameter of the guide on the effective power transmitted. We discuss the methods available for analyzing the change of impedance of the circular waveguides with special emphasis on the modal analysis method and the possible required computational methods which are available. We include a discussion of the EROI factor (energy return on energy input) associated with the microwave heating process described.

Evaluation of the engineering students general abilities to innovate

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For the past ten years Puerto Rico has been immersed in an economic crisis without precedents. The economic growth and social progress depend heavily on innovation. Several indicators show that Puerto Rico is lagging innovation and even between entrepreneurs there is a general lack of capacity to innovate lagged of general skills. In more recent years, innovation capacities have been gaining importance in enterprises, many of which especially value their employees ability to contribute to the innovation of their products, technologies and process to remain competitive. Universities play an important role in the education and training of innovators. There is a high correlation between a region's level of development and the quality of life and the number and impact of the innovations emerging from their universities. The leading institutions have undertaken efforts to stimulate and prepare their students to innovate, but these, particularly in Puerto Rico, does not prove sufficient. In all disciplines, particularly in engineering, it is necessary to train more faculty, make curriculum changes, and very especially, measure the results of the various strategies that are intended to contribute to the development of skills for innovation. Several authors have proposed general skills that in addition to those of technical nature are necessary to solve a practical problem creatively by seeking information to understand the environment and using partnerships grounded in good communication. These are interrelated skills that have to be present simultaneously to enable innovation. Training professionals to work in the current economic reality requires evaluating the results of the strategies for the development of these general skills. The availability of tools to evaluate skills, attitudes and behaviors necessary to innovate, not only allows calibration and comparison of the impact of changes in curricula and teaching methods, but also and especially the selection of projects that are part of most programs and engineering courses. One of these tools is the GISAT Innovation Test developed by the Conference Board of Canada. Through our experimentation with these tools in our engineering courses we found the need to be adapted to our context to obtain useful and reliable results. In this paper we present the Adapted GISAT Innovation Test (AGIT) and the results of the validation of the instrument held in innovation courses for engineering students at the Universidad del Turabo.

Experimental Validation of a Structural Dynamic Model for Integrated Light Pole-Wind Turbine Systems

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The purpose of this research is to better understand how to model a light pole-wind turbine system in order to study how wind turbine induced vibrations may affect typical light pole structures. The study considers experimental testing in a small scale light pole-wind turbine system to refine and validate the analytical approach. A modelling technique was completed in ANSYS Workbench which achieves a 97% of accuracy against experimental values. The modelling approach is calibrated and will be used in the analysis for design of full scale light pole-wind turbine system as well as validation of an analytical approach through a finite element analysis.

Star Tracker for Cubesat Platform

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Star tracker is a kind of sensor for attitude determination that uses stellar objects (stars) as references. It is basically a digital camera used for taking pictures of the sky. Because the position of known stars is fixed on ECI frame so that if we can detect which stars the camera is looking at we can determine the attitude of the spacecraft. Compared with other types of sensors for attitude determination, star tracker is the most accurate. Although star tracker is used on big-size satellites, it is not used popularly on cubesat platforms. Designing a star tracker for a cubesat platform will face constraints such as finding suitable CMOS lens, image sensor and other electronics devices, size, mass, process time and power consumption. The data processing step of a star tracker includes acquiring image data, star detection and centroid calculation, star matching, and attitude calculation. Acquiring image data is time-consuming. The image data is read out at high speed so that the main processor (normally a microcontroller) cannot directly read the data. The ordinary solution is using external SRAM and FPGA to buffer image data so that the microcontroller can read data later at lower speed. The next step is star detection and centroid calculation. This step is also time-consuming because the processor must deal with a large amount of data (image data). Therefore, the idea of this project is to concentrate on implementing star detection and centroid calculation directly on FPGA. The solution gives out some advantages. The other steps of data processing are still implemented on a microcontroller but the data flow between FPGA and microcontroller is much smaller (centroid results instead of whole image). Moreover, the centroid calculation is simultaneous with the image data acquisition so that the overall data processing time will be enhanced. If we used an SOPC chip (which includes micro-processor core and FPGA part within one chip) instead of microcontroller and FPGA, the star detection and centroid calculation part can be re-used and the other steps of data processing can be implemented on the micro-processor core. This design can make the layout design become much simpler.

Modeling, Simulation, and Implementation of Multirotor Aircraft to Test Control Strategies

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Multirotor aircrafts are being used recently by different industries, institutions and individual customers for different particular missions. It has been very complicated for the Federal Aviation Association (FAA) to regulate their use and special interest has been placed on the interference of these devices with actual commercial and military conventional use. Multirotor aircraft systems can be implemented under radio controlled (RC) systems and under programming basis or autonomous autopilot configuration (UAVs). There is a huge risk of accidents related to these aircrafts flying under uncontrolled manner. The aim of the research is directed to the area of safety flight of multirotor devices. The proposed research

aims to address the development and implementation of multirotors from modeling, simulations, and safety flight controls. The multirotor aircrafts are essentially programmed to fly under their basic configuration. The first objective is to implement control strategies for tracking trajectory, pattern recognition, or special missions using PID's, Optimal Control, Model Predictive Control, Neural Networks, among others Control Strategies. The second objective is to investigate possible ways of solving failures of the multirotors through algorithms or by exploring the reconfiguration of the structure that will allow mitigation of electrical or mechanical failure. This approach will be implemented and tested in the real hardware. Multirotors will be assembled and programmed in-house in order to obtain the expected results. The mechanism of reconfiguration will also be employed and tested in real time operation. The failure will be prompted in the actual device and the control program shall be implemented to recover the safety of the flight. The benefits of this project are to support the safety of the device and its surroundings, as well as to present options to avoid crashes and their consequences since the multirotor aircrafts will have the opportunity to recover in flight.

Pendulum-Based Energy Generator

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Pendulum-based energy generators have been in use for more than 200 years in the shape of mechanical watch movements. They harness the kinetic energy of an oscillating weight to either winding devices or electromechanical generators. The energy produced has been proved useful to drive wristwatches where power consumption is minimal (a few micro watts). Although this technology has been developed to be worn on the wrist, there are studies evaluating the mechanism on other body locations. This work evaluates the potential of energy generation according to the available energy under different conditions. A pendulum model is developed and driven under several conditions to evaluate its performance. This technology can be used to generate energy to drive portable electronic devices once the limitations are defined.

Electronic Inventory Control System

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Almost every enterprise has a series of items, property and assets whose number and value must be kept under strict control. Therefore, inventory records are critical in most businesses and institutions. Often they are a substantial part of the total assets. Inventory systems tie up capital, require handling, use storage space, deteriorate, become obsolete, require insurance, incurs taxes, can be stolen or get lost. Inventory must be considered at each of the planning levels such as production planning which is concerned with overall manufacturing goods, master planning which is related to end items and material requirements, and supply planning which is concerned with component parts and raw material. A key decision in manufacturing, retail and some service industries is how much resources to keep on hand. The instant inventory levels are established, they become an important input to the budgeting system. The purpose of this project aims to reduce the time and errors that existing inventory systems involve. Our system aims to reduce human errors and bad handling by conducting this process electronically. The system is composed of devices attached to inventory items that communicate with a main access point in order to maintain a database periodically, keeping updated the inventory information which is stored in a remote database. The database contains information about the inventory available, its location and the staff working in that location. By having the staff's information in the database we can control who has access to the inventory's information. These devices use Bluetooth Low Energy (BLE) technology to communicate between them. There are two types of devices,

the first one is the Main Access Point and the other type are the item identifying nodes. The Main Access Point job will be to scan the item identifying nodes; it consists of an Arduino UNO and a BLE module HM-10. In order to maintain the inventory's information the Main Access Point will send the data recovered about the items available to the server that stores the database. Managers and staff will have access to the inventory using a web application. They have the option to update the existing inventory, to add or remove items; also have the option to inspect the existing assets in a given area, and finally the option to execute a real time inventory.

Modeling Processing Times Based on Expert's Estimates

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In the absence of data, simulating a system requires the use of estimates from experts to obtain at least a range, but preferable a range and a most likely value. These estimates are then used as parameters in one of 4 probability distributions: a) Uniform or Beta for the case of range only estimate; and b) Triangular or Pert for the case of range and most likely value estimate. Then the question that arises is: what do we use? Pert or Triangular? Beta or Uniform? We present a study of the effect on typical measures of performance of using Pert vs Triangular, Uniform vs Beta. Some of the findings reveal that, in the case of the Beta and Uniform, the effect on measures of performance (utilization, wait time, and flow time) of the Beta distribution is significant only of the first shape parameter (α) is markedly different than the second shape parameter (β). In the case of the Pert, we noticed that as the range (Max – Min) increases, the “pessimistic” effect of the PERT also increases. These and other results have helped us developed some guidelines to select one of these distributions. For example, Pert and concave Beta should be used for conservative decision making and triangular and convex Beta for an optimistic one.

Biological, Chemical and Ecological Systems Characterization

Lignin Degrading Bacteria At Laguna Grande And Laguna Aguas Prietas' Water In Fajardo.

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Lignin is often the most difficult portion of plant biomass to degrade and plays an important role in the cell wall structure of plants as it serves as its support. It is also the most abundant natural aromatic polymer in the world. Lignin is a complex heteropolymer linked to cellulose, giving plants structural integrity. The deconstruction of lignin and its dissociation from cellulose presents a challenge for soil microbes and biofuels engineers alike. The purpose of this study is to find bacteria that degrade lignin at bioluminescent bay Laguna Grande and Laguna Aguas Prietas in Fajardo Puerto Rico. Water samples from both lagoons were obtained, which were added to culture media. Liquid culture medium were used: LS4D for measuring absorbance, medium culture with Remazol Brilliant Blue R indicating lignin degradation, and enriched medium with lignin as the only sole carbon source. Dilutions were made from the cultures and then cultivated in trypticase soy agar, isolating the bacterial colonies. Also, DNA extractions were done to identify bacteria by 16S rDNA sequencing. For eleven days absorbance was increasing for both lagoons enrichments, indicating that phenolic compounds concentrations were decreasing. Seven isolated bacteria were closely related to *Staphylococcus* sp. and *Shewanella* sp.. These bacteria constitute novel lignin-degrading bacteria.

Bioprospecting for xylose-ferment bacteria

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Society seeks renewable generation of biofuels to meet global demand. For the production of biofuel it is necessary to generate enough ethanol, which has been the main obstacle. Ethanol is produced by the fermentation of simple sugars. Microorganisms capable of producing ethanol by fermentation are yeasts and fungi, but they do not produce enough ethanol. Nature has a variety of microorganisms with the ability to use biomass as a source of nutrient generated some of these are: yeast, fungi and bacteria. Bacteria can use the organic matter that is generated from different productive activities, transforming waste into useful and renewable resources. The production of biofuel from bacteria do not cause wear and occupies large areas. Our goal is to isolate bacteria capable of fermenting xylose. Agricultural soil samples were inoculated into xylose enriched medium and observed color change to identify as indicative of xylose fermentation. Samples were obtained at the Experimental Station of the University of Puerto Rico in Gurabo. One hundred twenty bacteria capable of fermenting xylose have been isolated, including close homologues to *Pseudomonas putida*, *Citrobacter* sp., *Enterobacter* sp., *Burkholderia cenocepacia*, *Klebsiella pneumoniae* and *Stenotrophomonas* sp.

Bioprospecting Antimicrobial Activity From The San Juan Bay Estuary

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This study analyzed the biodiversity present in the Bay San Juan Estuary is a system of interconnected lagoon and channels that flow into the Bay. Throughout this ecosystem, the water column receives discharges from natural sites, houses, and commercial facilities that have compromised its quality. Thus, the estuarine system harbors challenges among diverse microbes. Our objective is to isolate bacteria from the San Juan Bay Estuary that exhibits antimicrobial activity. Water samples were cultivated in Tryptic Soy Agar plates aiming for dense cultures. Bacteria exhibiting inhibition zones were isolated and characterized according to morphology, selected biochemical tests, and 16S rDNA sequencing. Antimicrobial activity was demonstrated by inhibition zone in concurrent cultivation with reference stains. The collections of forty-nine bacteria were isolated with antimicrobial activity. However, these are halotolerant stains, Gram-positive rods, producing catalase, and unable to reduce nitrate. Most of the antimicrobial activity was detected against *Pseudomonas putida*, *Enterococcus raffinosus*, *Staphylococcus epidermidis*, *Bacillus subtilis*, and *Lysobacter antibioticus*. The twenty-six isolated were able to inhibit the growth of four reference stains. Sequencing of the 16S rDNA demonstrated the presence of three *Alcaligenes* strains, *Bacillus* sp., *Achromobacter* sp. and *Pseudomonas* sp. The 16S rDNA is being sequenced for additional bioprospects. The potential of these microorganisms to produce useful antimicrobial compounds is great and must be better explored.

Diversity of Sulfate Reducing Bacteria in Response to a simulated hurricane at El Yunque Rain Forest

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Sulfate-reducing bacteria, SRB, are relevant participants of sulfur and carbon biogeochemical cycle in anoxic environments, such as hypersaline sites, minimal oxygen zones in oceans, mangrove sediments and elfin forest soils. A Canopy Trimming Experiment, that simulated the pass of a hurricane, has been done in the Tabonuco forest. Samples were collected at various times to monitor changes in microbiota. Our goal is to determine temporal diversity of SRB among the experimental plots as consequence of detritus deposition of the simulated hurricane. Soil samples were collected from plots, every week. Two treatments were applied: with and without detritus deposition trimmed from the local canopy. Total genomic DNA was extracted for amplification of the dissimilatory sulfite reductase gene (*dsrAB*) and terminal restriction fragment length polymorphisms analysis of their Mbol digests. According to the Dice

similarity index, under no detritus deposition, the similarity decreased as time progress, 44% at time 0 to 17% at week 10. In contrast, diversity increased over time where detritus was added. Sulfidogenic abundance was lower in the absence of detritus: 33 versus 94 phylotypes. The overall sulfidogenic community was dominated by major phylotypes decreasing over time. Only two phylotypes, 184- and 474-bp, persisted for both treatments and the five time periods examined. A simple sulfidogenic community seems to prevail in the Tabonuco forest soils that diversify as anoxic conditions are exacerbated by the addition of plant residues and their sulfate-containing residues are released to the soil. qPCR and Next Generation Sequencing will be applied to further characterize the sulfidogenic microbiome.

Biodegradation of benzene, toluene, ethylbenzene, and xylenes (BTEX) by yeast isolated from the hypersaline lagoon Las Salinas, Punta Cuchara Natural Reserve, Ponce, Puerto Rico

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Biodegradation of benzene, toluene, ethylbenzene, and xylenes (BTEX) by yeast isolated from the hypersaline lagoon Las Salinas, Punta Cuchara Natural Reserve, Ponce, Puerto Rico Juan F. Acevedo-Alfaro¹, 2,4, and J.R. Pérez-Jiménez, 2, 3,4 ¹Pontificia Universidad Católica de Puerto Rico, 2 Universidad Del Turabo School of Natural Science and Technology; ³Interdisciplinary Research Institute; ⁴Puerto Rico Institute for Microbial Ecology Research 1 jacevedo@pucpr.edu, 2 ut_jperezjm@suagm.edu Benzene, toluene, ethylbenzene, and the isomers of xylene (BTEX) are volatile anthropogenic pollutants derived from petroleum products that cause harmful effects in humans and other organisms. Yeast were isolated from a 35-ha hypersaline coastal lagoon, Punta Cuchara Natural Reserve, Ponce, Puerto Rico, which is an important nursery for marine species and serves as an avian refuge. Coastal lagoons frequently are contaminated with BTEX. A total of 18 culture-dependent yeast species from the lagoon included the genus *Blastoschizomyces capitatus*; *Candida albicans*, *C. glabrata*, *C. rugosa*, *C. parapsilosis*, *C. tropicalis*, and *C. zeylanoides*; *Cryptococcus neoformans*, *C. albidus*, and *C. uniguttulatus*; *Geotrichum* sp.; *Kluyveromyces* sp.; *Prototheca zopfii*; *Rhodotorula minuta* and *R. mucilaginosa*; *Saccharomyces cerevisiae*; *Trichosporon cutaneum*; and *Yarrowia lipolytica*. A static culture system, each consisting of a serum bottle capped with Teflon Mininert™ valves was used in each of three successive trials to determine degradation of BTEX by each yeast species. An aqueous mineral medium stock solution was prepared with NaNO₃ (2.0 g/L), KCl (0.5 g/L), C₃H₇MgO₆P (0.5 g/L), FeSO₄ (0.01 g/L), and K₂SO₄ (0.35 g/L). Each yeast species was inoculated at a concentration of 1 x 10⁴ yeast cells/mL into the static culture system with a mixture of 118.75 mL of the mineral stock solution and 6.25 mL of BTEX. The BTEX was the only source of energy and carbon. The inoculation was incubated for 150 hr at 25°C. High-performance liquid chromatography was used to determine the biodegradation of the BTEX in each system by each yeast. The majority of the yeast species degraded the BTEX completely, although traces of BTEX were detected for some species. Thus, yeast species appear to serve as biodegradation organisms in hypersaline lagoons, many of which could be contaminated from petroleum spills.

Study of the Chemical Composition and Cytotoxic Properties of Puerto Rican Plant *Simarouba tulae*

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Puerto Rico contains a vast of endemic plants species that are not taxonomical recognized, or if they are, a chemical screening of this plant are unknown. Similar happens with the endemic plant *Simarouba tulae*, which happens to have cytotoxic properties interesting for cancer research. The Quassinoids are highly oxygenated terpenes and the responsible of the anticancer properties of the *Simarouba* species. Previous work shown, that the hexane extract of *S. tulae* is cytotoxic to T47D (breast) cancer cells. In

order to know the metabolites that shown anticancer properties we need to purify the extract with the classic technique Column Chromatography. From past purifications a S2H2 bioactive fraction was obtained. Eleven subfractions from this fraction were obtained in silica gel column chromatography with 2% of methanol in chloroform. The last sub-fraction is now being purifying in silica gel column chromatography with 5% of methanol in methylene chloride. After obtain the new fractions a H1 & C13 –NMR analyses are realizing for study the signals of the compounds in the fractions. This analysis allows us to determinate where we can find the desire compounds, the Quassinoids. It is important to study the endemic plants because we can find new molecules that can be precursor for new treatments of harmful diseases, like this cases, cancer disease.

Diversity Profiles in the Oral Cavity Bacteria in three Species of Micro Chiroptera Related to their Diets in the North of Puerto Rico

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There's at least 13 specie of bats that can be found in the island of Puerto Rico. These are the only flying native mammals to the island, and are active at pollinating native flora, dispensing seeds, and controlling insects such as mosquitoes. The diversity in their diets of each different species can be seen in their bacterial ecology, as it varies for each, according to what it consumes. The purpose of this research is to identify three different species of bats (*Eptesicus fuscus*, *Noctilio leporinus*, and *Artibeus jamaicensis*) according with their oral microbiota using their saliva as a sample. Samples where obtained in two different days, in Bosque Julio Enrique Monagas, Bayamón. Each bat differ from their physiological aspect and age. All saliva samples (6) have been obtained using a sterile swab and incubated (33.7°C) in test tubes containing nutrient broth for two days. Then it was transferred to 50ml flask with nutrient broth, to increase bacteria concentration. Isolated microscopic individuals were studied for their morphological aspects and microscopic structure. At this moment, there's only samples of *E. fuscus* specie. Our preliminary results demonstrate presence of coccus and rods, and bacteria Gram-positives and Gram-negatives. Two bacteria have been recognized by their morphological aspects and microscopic structure: *Serratia marcescens*, and *Pseudomonas aeruginosa*. Future work include a series of biochemical tests will be conducted to improve the identification of the isolated bacteria, followed by a T-RFLP analysis to understand the diversity of bacterial communities when all samples of the three species have been obtained and reach to a conclusion if it is possible to identify the species of bats for their oral microbiota.

Synthesis of Highly Porous Silicon Nanowires (SiNWs)

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Vertically aligned silicon nanowires arrays (SiNWs) have been synthesized using an electroless etching (EE) procedure. This method consists of a short chemical etching of single crystal silicon wafers, Si(100), using a silver nitrate and hydrofluoric acid based solution. The different experimental parameters and their effects, including temperature, etching time, and concentration of reagents, have been studied, and the experimental procedure optimized. The synthesized SiNWs have been characterized by FE-SEM, XRD, BET and EDX. Surprisingly, the as-synthesized SiNWs are characterized by having surface areas of ca. 270 m²/g, suggesting that these materials are highly porous and could be used in a vast variety of applications (i.e. as catalytic support or even to design new photovoltaic devices). The measure of the reflectance of SiNWs by UV-Vis spectroscopy reveals that the reflectivity of single crystalline samples has been dramatically reduced with respect to the non-treated samples, reaching the 1% reflectance in the whole UV-Vis spectrum, without the need of using anti-reflective coatings.

Environmental risk encompassed by biocatalytic diversity for arsenate respiration

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Arsenic represents a priority pollutant due to diverse health effects and hardly noticeable presence in nature. Arsenate (AsV) usually is bound to the geological matrix while arsenite (AsIII) is more mobile in the water column. The dissimilatory arsenate-reducing prokaryotes (DARP) constitute a taxonomically diverse group that derives energy from arsenate respiration. Despite the limited biochemical understanding, arsenate respiration is ultimately catalyzed by the arsenate respiratory reductase, encoded by the *arrA* gene. Most information currently available on ARR is provided from genomes minimally annotated. The congruency between nearly complete *arrA* and 16S rDNA phylogenies suggests ancient origin for arsenate respiration. There is need to assess the diversity of the *arrA* genes to describe and model predominant features for risk assessment. Our aim is to examine the prevalence and diversity of *arrA* genes to resolve sentinel regions for environmental health. Genetic homologs for *arrA* from known DARP (*Desulfosporosinus* sp. Y5, *Bacillus macyae*, *Shewanella* sp. ANA-3, and *Sulfurospirillum carboxyolevorans*) were searched in GenBank and deposited genomes. We established a database of thirty-one nearly complete *arrA* sequences (10 for Firmicutes and 6 for Epsilonproteobacteria). Nine additional homologues were detected among bacterial genome projects for Firmicutes (921) or Epsilonproteobacteria (81). Additional homologues were found for Archaea (9), Gammaproteobacteria (7), and Betaproteobacteria (4). No bidirectional oxido-reductases were detected. In silico analyses for arsenate reductase produced several sentinel regions to design bioreporters. The absence of *arrA* gene from most prokaryotic genomes suggests prevalence limited to uncommon taxons. However, the nearly complete *arrA* represents a useful biomarker to ascertain prokaryotes capable of arsenate respiration and monitor the risk of arsenic mobilization in nature.

Chemical characterization of a primary forest and a secondary forest at El YunqueBetancourt, Luz¹; Lugo, Ariel²; Delgado, Natalie¹; Maldonado, Anthony¹; Martinez, Marijulie¹¹Universidad de Puerto Rico, Cayey, PR; ¹US Forest Service, IITF, San Juan, PR

The importance of secondary forests is growing due to the increasing loss of most primary forests. The secondary forest is important, not only for a sustainable economic development, but also for maintaining biodiversity and environmental balance. Puerto Rico contains a great quantity of secondary forests and characterization and documentation of their physical and chemical traits can aid in understanding the dynamics of ecological processes. In this study we intend to (1) compare the physical traits of a secondary forest through time in order to deduct the degree of rehabilitation of the forests; (2) perform a detailed analysis of macro and micro nutrients using an Inductively Coupled Plasma Atomic Emission Spectrometry (ICPAES); (3) acquire the macro and micro nutrients data required for the characterization of total elements in secondary and primary forests sample soil; (4) correlate the total elements content between the secondary forest and primary forest to establish the impact of disturbance. The preliminary results demonstrate that there is a significant difference between Al, Ca, Fe, Mg, Na, K.

Business and Entrepreneurship

A path to a brighter future: Mapping the technology transfer ecosystem of a private university in Puerto Rico

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Despite the important role accorded to universities in the research literature on technology transfer, the Puerto Rican experience remains notably absent from this conversation. While all major institutes of higher learning in the island engage in technology transfer activities, these tend to evolve in an ad-hoc manner and are not amply documented or discussed in scientific literature. This paper seeks to address that gap. It summarizes the findings in phase 1 of an exploratory case study on the experience of a private not-for-profit university in Puerto Rico as it seeks to expand its technology transfer ecosystem. Issues related to the research design, the institutional profile, the technology transfer ecosystem surrounding the university and suggestions for further research are discussed.

Human Resource Management Practices Socially Responsible as a key Factor to Drive a High Commitment and Employee Satisfaction toward the Organization.

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One of the topics of major relevance in today's business administration is the Corporate Social Responsibility (RSC). The RSC is a multidimensional construct that considers the commitment of the company, the clients, the government and the attitude of the employees (Tziner, Bar, Pray & Kadosh, 2011). Many studies and researches emphasize the business administration practices related to RSC as a mean to be more competitive. Because the employees are the main components of the interest groups that contribute directly to the success of the company, analysis of the reactions of employees regarding the practices of RSC can help answer lingering questions about the potential impact of this construct in companies and illuminate some processes responsible for them (Bauman & Skitka, 2012). Trends in HR management for this century are oriented towards new priorities in office and management activities related to this. All studies point to the need to increase work efficiency for companies to be more competitive and that means more attention in every way the role of people in organizations (Celma, 2011). Aceituno, Cea-Moure, Casado & Ruiz (2013) suggest that the implementation of CSR should be considered as a strategic objective to be achieved through the establishment of a department, to communicate, motivate and boost both internally and externally the various actions to be taken. This makes Corporate Social Responsibility an important asset as a mechanism for the management of human resources to analyze the loyalty and commitment of employees with the organization (Chiang et al. 2010). This article aims to develop aspects that allow locating the Corporate Social Responsibility (CSR) in human resources (HR) management as a key factor to drive a high commitment and employee satisfaction toward the organization. This empirical study was conducted with a sample of 298 employees in Puerto Rico. The results of statistical analysis show the fundamental role of establishing HRM practices in corporate social responsibility aimed at seeking the satisfaction and commitment of employees and their positive influence on the organization.

Vengeance, fraud in order to do harm or create losses outside the norm.

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For all types of business the fraud is a global problem creating millions of losses. Since its inception it has been a controversial topic to discuss about and have been stealing the attention causing concern in micro and multinationals companies. Donald R. Cressey is the author of the triangle of fraud he allows the knowledge to make new models of fraud, all the models have the goal to explain how the fraudster could pass the controls and what drive them to do it. It's been put to work for many years as reference however the model don't consider when the fraudster have the intent to damage and get a personal satisfaction beyond the motivations of which the theory use. This paper investigate modification to the current fraud model. Most cases of corporative fraud are performed by employees how have the ability, skill and chance to do it. Is for that reason that companies implement internal controls but the employer doesn't has the ability to know what is going in the minds of his employee. Mostly employees have discomfort or dissatisfaction by work and accumulate a resentment that eventually turns in desire for revenge.

Technology: The main option to increase competitiveness among countries in the field of medical tourism?

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Technology: The main option to increase competitiveness among countries in the field of medical tourism? Erasmo Martinez Parrilla Universidad del Este Escuela de Administración de Empresas Abstract: The issue of medical tourism has become very popular today for being one of the most developed industries worldwide. One of the main factors for this success lies with the use of advanced information and communication systems that gives users better access to medical services they request. It also provides physicians and service providers all the information necessary to meet the needs of customers. The use of technological advances such as data exchange platforms, virtual communication or video conferencing and 3D technology are just some of the technological advances that have facilitated the development of this type of tourism. With the completion of this study we aim to set how technology and other elements of the country's infrastructure can provide Puerto Rico a competitive advantage in the medical tourism industry versus Colombia and Costa Rica leaders of this type of tourism in Latin America. The results of this research primarily based on the Porter's Double Diamond Theory will serve as a basis, for the political class of this country and scientists who serve to design public policy aimed at developing a competitive design for Medical Tourism, as exemplified by the macroeconomic variables of the leading countries in the tourism sector.

Businesses as Economic Terrorists?

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The article provides innovative, important, and relevant information, as it raise consciousness of the existence of business terrorism. Research on business behavior is vast, but none consider their activities as economic terrorism. The literature review on economic terrorism is scarce, and does not take into consideration that business behavior has the power to terrorize. Although there is sufficient evidence to support the proposition, it has never been pointed much less published. This research provides information to counter economic terrorism, yet the aim is to avoid economic terrorism by creating policies that protect the population, the domestic economy, and the government.

The impact of human resources policies in the employees turnover intention and how human resources policies impacted the organizations performance in Puerto Rico

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The quality of life at work that an employee of an organization observes has been identified as a prediction of unwanted behaviors: turnover, absenteeism, reduced motivation and productivity, directly affecting the performance of the organization. (Flores Zambada, R., & Madero Gómez, S. 2012). The studies show that Human Resources' policies influence employee engagement regarding behavior and knowledge management (Gagné, 2009). It is important to highlight that the studies support the Human Resources' policies influence in the decision of workers to remain in their organizations (Chew, J. C. L., 2004). Given to what has been explained, this research studied The Impact of Human Resources Policies in the Employees Turnover Intention and How Human Resources Policies Impacted the Organizations Performance in Puerto Rico. As a tool for data collection two questionnaires were implemented. One for Human Resources managers and another for employees, in a Likert scale of 5 levels. In this study we analyzed a sample of 85 employees and 8 Human Resources Managers from different companies in Puerto Rico. The results concluded that the turnover intention was not related to the Human Resources Policies and established that what actually interferes with the turnover intention of employees is: job dissatisfaction, lack of motivation, lack of autonomy at work, and attitudes with reference to the modus operandi at work.

Factores Relevantes para la adopción Tecnológica por las Microempresas en Carolina

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Today, Cloud Computing is rising strongly, presenting itself to the market by its main service models, known as IaaS, PaaS and SaaS, that offer advantages in operational investments by means of on-demand costs, where consumers pay by resources used. In face of this growth, security threats also rise, compromising the Confidentiality, Integrity and Availability of the services provided. Cloud computing analysts often emphasized that the most important area of concern and risk regarding cloud computing services is privacy and security of data. Since cloud computing involves massive use of third-party services and infrastructure, the problem of security and privacy of sensitive data transferred in cloud applications cannot be avoided – cloud computing environment may not be as secure as in-house IT systems. Earlier research studies documented that SME owners and managers did not understand the security risks when initially adopting computers nor did they understand the security risks with the adoption of internet-based services such as e-commerce, telecommuting, and multi-media. Eventually, this advancement in technologies will provide new platforms for the companies to extend their business activities. Many firms, such as Dell, Wal-Mart and Intel, have acknowledged that they enhance their supply chain functions by using web technologies. They have also stated that after implementing web technologies they can provide superior value to their customers, which helps them to acquire competitive advantage. For evaluating the security for any cloud there are mainly CIA objectives are to be taken in consideration. CIA analysis includes 1. Confidentiality 2. Integrity and 3. Availability. For anyone to select the cloud provider one must have to consider the CIA objectives. Many experts in government and commerce still consider the greatest barrier to adoption of cloud services to be concerns about information security and privacy.

El Impacto de la Privacidad de los Usuarios en la Persistencia de Publicación de Información Personal en las Redes Sociales

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The objective of this research is to measure the user's continuing intention to post personal information through social media (self-disclosure). Also, determine the influence that causes of perceived of privacy concern between users intend on continuing disclosure of your personal information as a moderator variable; to check the effect it can have the concern of users in this behavior. It also aims to compare the behavior of users of social networks in the different geographical regions through the variables of the suggested model. The investigation will include a sample of 384 active users in a social network on the Internet and who are resident in countries of the regions: North America, South America, Central America, the Caribbean, Africa, Europe and Asia. The statistical technique of multivariate analysis (PLS-SEM) was used to respond to each of the questions and assumptions made by the investigator. The results of this research and its possible application could benefit everyone in society who use electronic means to communicate and interact, as they will be more informed and focused on the vulnerability to which they are exposed to post personal information through social media. In addition, companies that develop social interaction platforms will understand the behavior of their users, enabling them to implement processes, policies and mechanisms to promote the protection and security of data in these systems. In this way, they could prevent users from being exposed to an environment where they can become a victim of identity theft or other cybercrime, obtaining as a result that the organization may be affected.

Are there differences in Entrepreneurial Traits in University Students? A Four Country Comparison

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Entrepreneurship is a dominant force that plays a critical role in contemporary world economies. It generates ongoing innovation and improvement of our goods, services, and institutions. It makes them more efficient, affordable, and, thus, effective. Given this importance, it is necessary to understand the factors that foster entrepreneurship. Studies have found a close relationship between entrepreneurial orientation and personality traits and why some people choose to become an entrepreneur and why others do not. The question of what separates those who choose to pursue entrepreneurial quests from those who opt not to be, is an intriguing issue. Growing evidence regarding the relationship between entrepreneurs' education, their businesses, and prospects of success is indicative of the importance of university-based training for both graduate and undergraduate students. One's attitude towards entrepreneurship can be influenced by educators or practitioners. However, finding a specific attitude towards entrepreneurship requires further investigation and modeling. This research aims to investigate the level of entrepreneurial traits in a higher education institution in Puerto Rico and contrast them to traits level of university students in South Africa, United States and the Netherlands. Our findings have implications for educators, potential entrepreneurs and policy makers. We gathered the data through a validated entrepreneurial traits questionnaire with 104 Likert scale premises from 329 participants. Our analysis suggests that there is a gap between entrepreneurial traits levels and key entrepreneurial indicators. Dominant traits of Puerto Rico's participants indicate high levels of confidence, energy levels, and thinking ability but low presence of business knowledge, use of outside resources, initiative and responsibility and number sense traits. Our results suggest that an entrepreneurial support ecosystem is necessary to support students to evolve to entrepreneurs. An individual attitude towards entrepreneurship can be influenced by educators or practitioners. It is important to guide entrepreneurship education to the strengthening of the entrepreneurial attitudes and skills. Also important, is not necessarily to consider business education to be related to entrepreneurial intentions.

Our study validated previous researches regarding that entrepreneurship education must give students the hands on, how-to technical skills to create, manage, assess, and sustain new enterprises. In order to learn to develop a product or service, create a business plan, find new resources, build a company, market their innovation. Skills and traits alone hardly generate new enterprises, but they certainly guide their development.

The impact of management on employees' information security practices compliance

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This research aims to measure the impact of the employee's perception of management participation, information technology (IT) security awareness, and the influence of formal and informal sanctions, on the employees' IT security practices compliance behavior intention, in organizations in Puerto Rico. The purpose of this study is to determine a predictive model, and the factors that influence the intentions of employees to comply with IT security practices. The rationale for this study is to report to the management the factors that influence the intention of the employees to comply with IT security practices, so that they take appropriate measures to protect information and IT resources ensuring the security goals: confidentiality, integrity and availability (CIA), in the organization. The methodology will consist of a cross quantitative correlational, no experimental research scope. The sample will be 150 non-managerial employees' professionals, who work with IT as part of their daily work. Participants in this research should work in companies that have IT security practices, and they should have knowledge of them. Additionally, the employees' professionals should work in different departments in companies in Puerto Rico, these companies must belong to different industries. To gather the data that will measure the constructs included in the research model, a questionnaire designed by the researcher will be used. To analyze the data, descriptive statistics will be applied in order to represent the profile of the participants. Also inferential statistics such as multivariate analysis (PLS-SEM), in order to measure the relationships between variables.

Pharmaceutical industry operators resistance factors prior the implementation of new information systems for documenting manufacturing batch records in Puerto Rico

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The information system is an integrated component to collect, store and process data and provide information, knowledge and digital products altogether. The organizations rely on information systems to manage their operations, interact with customers, suppliers and compete in the marketplace (Zwass V, 2016). A manufacturing lot uses ticket or batch report that contains the steps where operators document the manufacturing process of a product. It is run by several operators whose document each significant step in the manufacturing, processing, assembly or other related tasks for the completion of a manufacturing batch as per regulations in Part 211 188 Good Manufacturing Practices (Jones D, 2010). This research aims to identify the factors of resistance in manufacturing operators prior implementation of a new system information technology to document manufacturing batch records in Puerto Rico, using the technology acceptance model (Davis, 1986). It is expected through the questionnaire, to identify the perception of use, easy to use and the intention to use on manufacturing operators. This research is considered under progress.

Exploratory study on the information security process of the application of web accounting technology in a sample of SMEs companies in Puerto Rico

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In recent times there has been a trend towards the “application service provider” (ASP) model, the “software as a service” (SaaS) model and the cloud computing models to enable SMEs to outsource information systems. This paper analyzes the processes of information security by applying accounting web technology SMEs. The work currently under development aims to determine how much knowledge and how prepared SMEs are companies in Puerto Rico to implement the technology WEB accounting by attempting to compete in global markets. Currently in Puerto Rico it has been much talk of the magnitude that SMEs in our economy, but very little has been said of the challenge posed by the implementation of accounting systems security when it comes to global markets. The study is not intended to cover all SMEs in Puerto Rico, the existing limitation of reliable information on the number of SMEs in Puerto Rico, so my heart to make based on the information that might supplant the certified public accountants of its customers study categorized as SMEs. Our study seeks to determine how prepared SMEs are to face the information security challenges that represents the use of the web accounting technology, especially the cloud computing.

Financial and economic knowledge among college students

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The financial and economic knowledge today has an importance in a globalized and interdependent economy, as time passes, activities and financial instruments are becoming more complex and the average person hardly runs at the same rate such this evolution. The purpose of the research was to determine the level of financial and economic knowledge among college students as a comparative level between El Salvador and Puerto Rico. It also sought to identify the main sources that people have in relation to their knowledge in finance and economics. It was also examined if exist significant differences on the level of knowledge among men and women. 373 participants were used, the sample is from a private university in Puerto Rico (n = 373, 100%). a questionnaire that measured the level of financial and economic knowledge was used. Among the findings it was found that people have a low level of financial and economic knowledge. In addition to finding, the main source of financial and economic knowledge of the participants is (1) the family, (2) universities and (3) mass media. Another finding was that men generally had more financial and economic knowledge that women.

Developing online trust in ecommerce: a generational cohort study in Puerto RicoLópez, Ibrahim¹; Ramaswamy, Mysore²; Ojeda, Angel¹; Sánchez, Alizabeth¹¹Universidad del Turabo, Gurabo, PR; ²Southern University and A&M College, Baton Rouge, Louisiana, USA

Building trust is crucial for e-commerce vendors in order to attract consumers and develop long-term relationships with existing ones (Kantsperger and Kunz, 2010). There is a genuine need to know what audience most be targeted for our products and services, and how we can implement strategies to develop trust in our online commerce offerings. In Puerto Rico there are three generations in existence that are actively participating online: Millennials are termed “Digital Natives”, Generation X are termed “Digital Intermediates” and Baby Boomers are termed “Digital Immigrants” (Obal, and Kunz, 2013). Based on their particular demographics and technology adoption we can expect to find differences on how they experience technology and what is important to them when building online trust. This study will focus on four aspects of the website interface: security, privacy, navigation and feedback mechanisms, as drivers of online trust. We intend to provide an understanding in how Puerto Rican e-

commerce customers develop online trust and the moderating influence that generational cohorts have on the four factors that are the focus of the study. The study tries to address several gaps identified while performing literature review. The first one is related to the characteristics of generational cohorts can have on online trust development. Second, help further close the existing gap on the literature about the use of mobile devices by different generations. The five specific research questions to be examined in this research are: 1. How do Internet users from different generational cohorts in Puerto Rico develop trust in a website? 2. How does optimizing a website for mobile access impact the perceived ease of use of different generations in developing trust? 3. How do security and privacy cues on a website affect members of different generations in developing trust? 4. How do feedback mechanisms increase trust for members of different generations? 5. How do navigational cues on a website affect members of different generations in developing trust? A non-experimental quantitative research design will be used for this study. Data will be obtained by administering a survey in two phases: A pilot using 30 participants and then the data gathering phase. Both will take place during March 2016. The sample population for the questionnaire will be selected at convenience. It will consist of university students, employees from government agencies and other places in Puerto Rico. Analysis of the data and results should be available in May 2016.

Learning management system use to increase mathematics knowledge

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The purpose of this study was to compare the results of a mathematics comprehensive exam of two first-year university mathematics groups in Puerto Rico. The experimental group engaged in the use of a Learning Management System (LMS) and traditional teaching methods, while the control group was only engaged in traditional teaching methods. The design of the study was experimental and a t test statistical analysis was used, with a 99% level of confidence. The population of the study was comprised of 579 first-year university students. The control groups included 287 participants, and the experimental group included 292 participants. The use of the learning management system, combined with the Learning Cycle Sharma, produces a 5% better academic performance in students, which come with a deficiency of math skills 18% (490) lower than those students with averages of 550 in college board scores; besides exposing 55% (11 topics) higher mathematical content compared 45% (5 topics) to traditional methods.

Modelo de incentivos económicos para la etapa de desarrollo de proyectos cinematográficos: Estímulo a la industria del cine puertorriqueño

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Puerto Rico has a long filmmaking history that began in the early Twentieth Century and extends to the present. Throughout this period many film professionals have taken important steps in order to articulate and promote the consolidation of a national film industry. However, these efforts, which include initiatives from the private sector and the State, have been insufficient to achieve this goal and to transform the Puerto Rican film industry in to a vector for the country's sustainable economic progress. The concrete manifestation of this phenomenon is identified in the fact that virtually no Puerto Rican film reaches its ROI. This situation also reduces the chances for repayment of the loans that the Government of Puerto Rico grants for film production, generate many difficulties for producers and film production companies and affects the competitiveness of the sector as a whole. In response to these considerations, the aim of this research focuses on the conceptualization and design of an Economic incentives model for film projects from an ecosystem point of view. This model seeks to serve as a starting point for the creation of specific financial incentives for the first link in the value chain of

the production process of a film: the development stage. These incentives would be added to the existing loan options for local film production that the Government of Puerto Rico currently provides. The premise of this notion is that the financing of this early stage can have a positive effect in the potential profitability, as well as in the quality of Puerto Rican film projects. We believe that economic investments in the development stage of national films can also strengthen the Puerto Rican film industry in general. To theoretically support the model, the research process takes us through the film industries of the United States, Spain and Dominican Republic to identify best practices (benchmarking) of state subsidies in the context of two consolidated film industries and a developing one. This research exercise is complemented by in-depth study of the laws that benefit the film industry in each of these countries, with the examination of the history and evolution of Puerto Rican cinema and the analysis of the development stage as a concept. As part of the research process a panel of experts was consulted using the Delphi Method. The information gathered through this primary resources were crucial to identify the consensus that also underlay the model.

A study on how marketing is defined by marketing managers within companies: a comparative study

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Several authors state that there is confusion about what marketing is due to the existence of multiple definitions and interpretations. This multiplicity of definitions and interpretations complicates marketing development within organizations. One of the main causes that contribute to the decline of marketing within organizations is that there are many definitions of marketing. The importance of this study was to address this confusion using a content analysis to explore how marketing managers defined marketing. Previous research and articles were based on the analysis of the different definitions established in the literature from a theoretical and academic perspective. In addition, this research analyzed the definitions of marketing managers from strategic marketing and tactical marketing perspective. Something not investigated in previous research. The research questions of this study were: (1) How marketing managers define marketing? (2) In what frequency marketing managers define marketing as a tactical marketing function, strategic marketing function or both? (3) In what frequency marketing managers define marketing as a sale function? (4) In what frequency marketing managers define marketing as a promotional/communication function? The results showed that 17 percent of marketing managers in native companies in Puerto Rico defined marketing using concepts related to strategic marketing and 67 percent defined it using concepts related to tactical marketing. The results showed that 28 percent of marketing managers in multinational companies in Puerto Rico defined marketing using concepts related to strategic marketing and 44 percent defined it using concepts related to tactical marketing.

Knowledge of information security of mobile devices: the importance of secure your device to minimize the risks.

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The way we interact today is quite different as it was before the arrival of technology. Today we have some gadget that are either essential in our lives we use it at all times. These gadgets are well known as mobile devices we carry at all times and cannot leave for has become vital part of our being. Information theft of mobile devices such as Bring Your Own Device (BYOD) occurs more often devices. A study by the company CheckPoint in 2015, in the last two years there was an increase (BYOD) connecting it to the network of the company, 44% of organizations do not control the information on personal devices employees and 33% developers do not test the application for security applications. The problems they face are the following operating systems, telecommunications and finally the creations of different

applications without testing properly and open connectivity like hardware and software that mean "Bluetooth , Wireless NFC , Facebook, WhatsApp, etc.

Design

Historical development of native furniture in Puerto Rico

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The development of original native furniture in Puerto Rico is characterized by a mixture of influences that combine to create a new creole identity. One of the goals of this research is to identify how the practice of importing furniture has eroded the tradition of the Puerto Rican native furniture production and its impact and influence on Puerto Rican styles. Another important goal of this research is to analyze the influence of Spanish and American colonization in the development of furniture in Puerto Rico. In this respect, the aim is to identify the different stages, styles and techniques used through the development of furniture in Puerto Rico as reference for the development of a new contemporary identity for the island. The scope of this research is to create a true picture of the local furniture industry through its historical development. The methodology used for the development of this research began with a clear formulation of the problem. Once the problem was clearly formulated, the second stage was the development of the research questions. Finally, the relevance and position of the research was defined. As a result, we found that the import of furniture began with the Spanish conquest and subsequent trade with Puerto Rico which boosted imports of furniture styles to the island. Furniture in Puerto Rico developed through the Pre-Columbian, Spanish, American and Puerto Rican periods. Of the most important styles are the taíno dujo, the Spanish Elizabethan style medallion chair, the Art Deco style and Henry Klumb furniture. Within the construction techniques most commonly used are wood carving and weaving. We used a wide range of raw materials, but the most used was the native wood and wicker. The Spanish and American colonization were responsible for the change of taste in furniture of the island. The furniture industry in Puerto Rico is not significant and is based on market prices. With the classification of these results an inventory of features, styles, techniques and raw materials was obtained for use as reference in the reinterpretation of contemporary indigenous furniture.

The graphic design industry in Puerto Rico: its evolution and current status

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The beginnings of the design are somewhat uncertain. Usually associated with a series of historical events that changed the daily lives and revolutionized the way we communicate. One of the events that marked the evolutionary pattern of the artistic and graphic industry worldwide was the appearance of the Bauhaus, where a new generation of professionals and studies of form, color, space, typography, color and composition took place. In Puerto Rico the socio-political situation plays an important role in the development of activities related to art and design. Before signing the Treaty of Paris by which Spain cedes to the United States territory of Puerto Rico, all cultural activity of the island was inherited from the Spaniards. The American Colony title opens the door to the Anglo-Saxon culture and exchange that fosters the evolution of design and its various disciplines. DIVEDCO and the Institute of Puerto Rican

Culture are two of the entities that defined the graphic industry on the island and marked the evolutionary pattern of the discipline. The poster was for many years the means par excellence of Puerto Rican graphic design and also served as a vehicle for educating the masses. The evolution of the media and technology have allowed the growth of the discipline in its practical dimensions, relegating the research foundations to the background, suggesting that the design is seen as a more empirical and informal practice. This research compiles information about the early practice of graphic design in Puerto Rico, important figures in the development, the historical and social context in which this activity took place and a summary of the current state of the industry Puerto Rican graphic design, in order that this information is available, thus contributing to the documentation in the discipline of design.

Mercedita International Airport : Updating and optimization of interior spaces

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This research is the final work of the Bachelor Interior Design for the International School of Design and Architecture at the University of Turabo, in Gurabo. Its purpose is to raise awareness of the importance of applying interior design, not as an unnecessary expense, but as a physical and psychological solution for the users of airports. These spaces are constantly changing due to frequent variations in the regulations of use. So, many of these fall into the breach of the law. As is the case of Mercedita International Airport, the physical context of research where interior design was used as a solution to the deficiencies found and within a specific methodology. It began with the architectural analysis conducted to obtain necessary information to understand the structural performance, circulation and how the airport platform was being impacted. As part of the study, a method of photographic documentation was used in order to study and analyze the interior of the building. Historical research was part of the study, documenting the historical background of the space with the objective to understand the context. A final analysis examined, compared and described different airports with the purpose of documenting the various strategies used in rehabilitation of other airport spaces. The result was the identification of many deficiencies such as lack of terminal space programming, shortage of entertainment and leisure spaces, scarcity of commercial activity and poor selection of furniture. According to the research, these deficiencies were identified which determined the planning and implementing of the design proposal through the following concept: "Transforming the airport space to a lounge". The goal was to solve and improve the deficiencies found through research. The final product is a space that positively impacts users, either passengers or visitors and employees. We achieve the aim to have an efficient airport facility through this research which resulted in the implementation of entertainment areas, activities for leisure and business while also fulfilling all safety requirements.

MBSR as a stress management tool for graphic design practitioners.

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The purpose of this research is to find out if mindfulness practice can be an effective tool in the management of work related stress from design practice. Stress is considered a widespread epidemic with impact on physical, emotional and psychological wellbeing (APA, 2015). Design studios and advertising agencies, where highly qualified and skilled designers are involved, generate high levels of stress due to the nature of the job which involves high productivity, tight deadlines, and long hours.

Mindfulness practice in the form of MBSR (mindfulness based stress reduction) as developed by Jon Kabat Zinn (Kabat Zinn, 2008) from the Massachusetts General Hospital has been successfully used as a stress management tool among health practitioners who rank first in the list of stress related professional activities. This project will explore the application of MBSR within the graphic design community and will measure its impact through a pre and post statistical analysis of the data collected through the highly reliable and viable PSS (Perceived Stress Scale) as developed by Dr. Cohen (Cohen, 1983) and translated by Dr. María del C. Fernández Rodríguez for Puerto Rico. The aim is to compare participant groups and measure the degree of change occurring as a result of intervention (MBSR). The initial phase of the project consists of identifying a group of graphic designers employed in advertising agencies and design studios (N) which will be divided into n1 (control) and n2 (experimental). Both groups will be administered a pre PSS. The experimental group will be exposed to the eight week MBSR program. After this period both groups will answer a post PSS. The second phase will consist of data analysis through SPSS (Statistical Package for Social Sciences). The final and third phase will be the SPSS data analysis of both groups from both pre and post PSS into a coherent and well structured discussion of the findings which will determine the significance of MBSR training. This project may help introduce MBSR as a viable stress management tool to combat job related stress emerging from design practice.

Flesh: there's something about skin

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'...I confront the city with my body; my legs measure the length of the arcade and the width of the square; my gaze unconsciously projects my body onto the façade of the cathedral, where it roams over the mouldings and contours, sensing the size of recess and projections; my body weight meets the mass of the cathedral door, and my hand grasps the door pull as I enter the dark void behind. I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other. I dwell in the city and the city dwells in me' (The eye of the skin, by Juhani Pallasmaa). We can argue that architecture's skin [envelope] responds more to our human body than to programmatic matter. Beyond being a place, Architecture is a set of complex effects that assault our senses. Architecture is nomadic, it meanders between memories, scenarios and stories that originate from space ...it is flâneur of contexts. Behind the architectural object we encounter: processes, images, texts, and drawings to be added in unfinished cartographies... Architecture challenges the conventions of place; it examines the exploration of form, builds atmospheres and in occasions is an act of resistance. It is an event, a city; it is a coordinate YOU ARE HERE. Talking about architecture is to converse about efforts, complexities and possibilities. Sometimes is an inexplicable but sensible language. Architecture is accomplice of dialogues and stories full of ethereal references. New kinds of envelopes have been made possible by contemporary technologies. Is the skin a result of materiality? Is it a boundary? A spectacle? The paper explores the INsight; there's something about skin. The significance of the envelope lies in the immediacy to the body. The paper attempts to introduce mediating terms between the architectural component and the evolving interests with media, technology and materials. The boundary is a visual tour of short stories of the skin. First to observe, the blur SKIN – Diller Scofidio and Renfro, SKINless – Herzog de Meuron, soft SKIN – Shigeru Ban and hard SKIN – Shop, extending the spectacle of the building to the out[sight]side. A contemporary culture of surface interested more in the idea of an envelope detached from any support. Targeting the skin as a site of inscriptions and then reworking a project of construction conceived as SKINtype. SKINtype is an idea to develop an envelope made up a "system" conceived as a series of interlock prototypes that explore procedures of design in the act of performing.

Fashion + Crafts + Technology = TechCouturism

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Fashion, crafts and technology: this is a trend that meticulously and informally began with proposals during the second half of the last century from designers such as André Courreges, Paco Rabanne and Issey Miyake. Thanks to contemporary designers such as Hussein Chalayan, Cute Circuit and Iris van Herpen, today a basis has been developed for confidence and promoting successfulness. After many decades, this trend aspires to attain an official definition for further identity development in which other designers could relate. According to this statement, there is no generally used definition that results appropriate: *wearable technology* is too vague and general; *wearable devices* does not refer to the fashion design concept; *fashion electronics* is explicitly focused on technological elements; *fashion technology* does not define the importance of the integration of the artisan skills. The term *TechCouture* (vaguely emerged some years ago) seems to summarize entirely the integration concept as a verbal fusion between technology and haute couture to demonstrate the continuous and real integration between innovative technological elements and the specific fashion design sector that includes conceptual contents and artisan work. The authors propose a variation to this definition by adding another evolution of the term TechCouture considering the elements of art and the trinomial arts-crafts-design at the origin of the current theme: *TechCouturism*. This term was developed in consonance with other artistic movements of the past, such as the Modernism, the Futurism, the Cubism and the Expressionism. The TechCouturism transforms into the formal recognition of a contemporary union, whose creative ideology is able to harmonize perfectly, and in an innovative way, fashion design, artisanship and technology. TechCouturism can offer an excellent marketing tool by establishing very contemporary means related to the most discussed trends on press and by the general audience. Within a saturated fashion industry that offers few opportunities to succeed among a multitude of competitors, TechCouturism promotes the benefits to talented and innovative designers taking advantage of the popular interest toward technology and fashion. These designers will be able to achieve visibility through elaborated creations integrating technology and haute couture, with the help of other technological tools such as the social networks and blogs. Emerging creative people need this kind of exposure in order to draw attention by a wider audience and work on bigger projects such as the prêt-à-porter collections or mass production. Ultimately: TechCouturism, an alternative showcase for new fashion designers.

A collaborative approach to design education and community development

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This research is based on the thesis and publication "Processes of participation: designing, building and dwelling contemporary housing". In the thesis it is stated that to the extent people are involved in the process of creating the spaces they inhabit, they are identified with them, own them and are able to protect and maintain them. But, how to involve people in the process? It is important to design the process to engage people before designing the spaces, and this process must be dynamic to ensure broad participation. This applies to the tactical interventions of Collective "TCSE" and the "Collaborative Design Studio" conducted with college students in San Juan, PR. The concept of Collaboration is used for the Studio because unlike the concept of Participation suggests equal conditions in the work to be performed. That means that residents from different communities learn from the technical knowledge of students and students learn from the experience of residents. Therefore, the project is not just FOR the community but is done WITH the community. The focus and what distinguishes the "CoDesign Studio" is that before students start designing the project, they are required to observe how spaces are

inhabited, the patterns of behavior of people in them and how these patterns relate to the spaces qualities. Taking this in mind, they have to design the process of dialogue or interaction with residents. This process should help more people to collaborate because it should be away from the usual meetings where only a few people show interest and dare to talk. After getting the results of the process and designing the project according to it, students must build an intervention with the community, based in the design and learning from the tectonics of the project. This methodology of observation, dialogue, design and build with the community help to break the gap between academia and practice. The processes of interaction conducted so far by students in the "CoDesign Studio" and Collective "TCSE" proved to engage and empower residents in the development of their communities.

LANGUAGE GAMES Getting lost in translation, is a feeling of otherness

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Language games is an exploration of meticulously design pieces that reflect experiences lived in Milan, Italy. A study of a recollection of events that emerge from conversations and dialogues spoken with foreigners. The design studies the problem produced by sound, provoking the feeling that occurs during a misconstruction of pronunciation; doubt, from both parties in a third place. A pool of international, multicultural exchanges between colleagues and friends that come from Greece, Lebanon, Turkey, China, United States, Puerto Rico and Italy, a common language: English; that intends to help mediate understanding but somehow provoking glances of puzzlement. Excellent pronunciation is the key of good communication, within values and standards of one's own culture. Frequently, meanings of symbolisms come from what we know to be, related to our past, to our culture and our pre-experiences... Within a mixed group of humans, all different in sizes, color, attitudes, cultures, and especially diverse in language, which is the spoken (sound) and non-spoken (gesture) form of communication, connecting and interacting comes to be a challenge. Freely a good understanding of *cultural relativism* becomes a way of life. Who is the outsider? Everyone. If communicating is difficult even with our cultural peers, what is communicating with other cultures? Speaking and understanding other languages is a mixture of never heard or seen forms of: pronunciations, gestures, symbolisms, humor that in many cases bring confusion. Never-the-less the feeling of constantly being misunderstood or the constant misunderstanding of others is unavoidable. Thus, a research on the way we communicate, or miscommunicate translated in design objects. Because speaking with internationals, all included, becomes a constant *art of deduction*. Did I say "I want to chew? or did I say I want to Choose? or do I want a shoe?", "Is it a ship or a chip?", "I'm hungry or I'm angry? No, I'm Hangry!". The series of objects in the exhibition intend to describe the feeling of bewilderment designed in a functional and demonstrative approach, considering both: action/gesture and simple form. What are archetypes? Archetypes are the mere translation of universal symbols, a *collective unconscious*, that create no confusion. For example, how would you draw a house? There is a standard association of a house drawn in the simplest form. By applying a form of language common to all, The Archetype, the series of objects are designed to reveal phrases that merge words frequently confused, as a result of "wrong" intonation.

Integrating mindfulness into design learning contexts

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Design literature regards mindfulness as a new competency that should be taught explicitly in design educational settings. Diverse human qualities that are associated with these practices are deemed important for designers. Research on the topic of mindfulness spans four decades in various fields of study and several streams of research approaches have expanded the ways it is described. In fact, some descriptions of mindfulness are said to sometimes cause misunderstanding. In design literature the topic

is referenced in different contexts but so far, no efforts appear to have been explored to describe and apply it in specific ways to relevant design academic situations. This study aims to approach the concept of mindfulness and its relevance to design in several dimensions: (1) to refine an understanding of mindfulness that posits the concept of openness as a shared attribute within theories complementary to mindfulness and to design. Openness, understood as receptivity to dynamic multiple perspectives, is then associated to the experience of interconnectedness as an alternate focus to the discussion of moral, ethical, sustainable or socially responsible awareness in design; (2) to establish the conceptual approach, behind the argument that a reflective visual tool, designed to embody and merge theories complementary to mindfulness and to design, can make the role of mindfulness explicit in design education and enhance a designer's awareness of inner aspects believed to impact design choices; (3) to draw potential evidence of transformation, upon engagement with the tool, through statistically significant variances and correlations of a number of applicable measured disposition facets. The instruments selected are widely recognized in their relevant research literature and will consider facets for mindfulness and for conflict resolution, which are very pertinent to the current multi-disciplinary roles and co-design perspectives in design thinking. This presentation will offer an overview of: (1) the rationale and relevance behind the design of the tool; (2) a few initial pilot applications in a graphic design academic context; and (3) the proposed study methods.

Educational Leadership

Why I didn't finish? Stories of the reasons that contributed the departure of doctorate degree studies.

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The departure situation from doctoral degree studies is a reality accepted in the academic field, to the extent that 50% of students enrolled in a doctoral degree program will not finish it. Gardner (2008) indicates that among faculty members of doctoral programs, that visualize this percentage as a reality of the doctoral degree experience, justify that a significant number of doctorate students do not have the cognitive and emotional capacity to complete their doctoral studies. The situation is intensified in Humanities and Social Studies doctoral programs. The participants were students who did not obtain their doctoral degree in education, due to the departure from their studies before completing their program requirements during the past 10 years. These subjects shared the following characteristics: adults, that had started doctoral degree studies in an education department in a Puerto Rican university, must have had withdrawn from doctoral studies during the last two-year periods and would have approved all courses requirements of the doctoral degree program that they were enrolled in. Due to the qualitative nature of this study, the primary mean of conducting said research was a focal group, to which the administrators delved into their reasons of departing from their doctorate studies. With the intent of triangulating the results, 5 se interviews were conducted and a final group was questioned by using the research questions by internet and electronic mails. The findings of this study were categorized, and were framed in Tinto's Interactionist Theory and the 3 phases. For the first two phases, categories that were interrelated in the first two phases corresponding to academic and social integration were used: selection process to a doctoral program, perception of their attributes as doctoral students, relationships with professors, pairs, departmental affairs (organizational culture), and the comprehensive exam process. For the third phase, after approving the comprehensive exam, the established/prescribed category was the relationship between mentors and dissertation committees. The questionnaire protocol was framed by the general research question; whose purpose was to obtain answers from 10 participants in the focal group. In the other two research phases, results from the interviews through internet and electronic mail were triangulated. These results were framed under

various categories: selection process of doctoral students, their perceptions of their attributes as doctoral students, the quality of the academic program and administrative services.

Concepciones de infancias

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Have you listened the next statements?: Who has not spilled the milk? Or If I have not taught you, how did you learned? Or have you heard... "If I do not have money, I do not have a body!"? or have you think in the phrase... "the children are the future of society!"? or the expression "There are children that are so restless that even their uncles do not like them"! All of them, where gathered through a research process based on the Grounded Theory (GT) in four educational institutions in Engativá, a district of Bogotá, Colombia. The study was conducted by a group of researchers from the Education Faculty (FEDU), of the Corporación Universitaria Minuto de Dios –UNIMINUTO–, integrated by professors of the program in childhood education. Previous phrases show some realities and their implication in the educational practices with children, where routines, dialogs, activities, feelings and in general, the relationship around them promoted emergent speeches, that helped to build narratives as writing resource. Consequently, the following categories emerged: Childhoods, educational practices, inclusion, affectivity, family and parenting patterns, which generated the following narratives: "The time machine; a childhood observatory", "Your future depends of what you learn in the first years of life", "Breaking chains", "If I have not taught you, how did you learned?", "The affectivity: A key resource in the work of teaching", "The symbolic body in the constructions of childhoods conceptions", "There are children that are so restless that even their uncles do not like them". The research process ended with a publication of a book called: ¿Quién no ha derramado la leche? ¿Who has not spilled the milk?

Educational Strategies and Learning Environments

No me gusta, ¡y punto!

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As mentors of Centro de Lectura y Redacción from Universidad del Turabo in Gurabo, Puerto Rico, we are committed to find creative ways to promote development in writing and interest in reading, whether it is in Spanish or English. On a daily basis, we find ourselves with numerous cases that we must look after in our sessions, from the complexity of emitting a clear message on a paper to simply help with basic subjects, such as accentuation or grammar rules. Oh the other hand, we had heard comments in some sessions from our writers, like the following: "Why is Spanish so complicated... but English is much cooler?... why do I need to study Spanish?... "No me gusta, ¡y punto!". These motivated us to submit this investigation, that its title goes by the last comment. "No me gusta, ¡y punto!" will explore the difficulties that Puerto Rican students go through on Spanish courses and will set how the underestimation of our vernacular can influence at the retention of the courses that our writing center impacts. Likewise, our analysis will explore the repercussions of this attitude on academic success and, later, on a professional career.

Technology and 21st Century English Language Learning

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Technology has been present throughout the history of mankind; however, the endless evolution of technology increases the need to incorporate it in the educational scenario. State-of-the-art gadgets,

software programs, APPS, and the accessibility to these devices are requiring educators to enhance their lessons by making them more pertinent to the English Language Learner (ELL) through the use of innovative technological trends. The panel will discuss a brief history of educational technology, current best practices of the use of technology in the English classroom, and a case study that will evidence how technology enables 21st century English Language Learners acquire language skills and content knowledge.

The effect of the Use in the Teaching Strategy of the Theatrical Pedagogy in the Development of the Integral Communicative Competence of the First Year Students of a Basic Spanish Course of a Private University

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The study aimed to determine the effect of the use of the teaching strategy of theatrical pedagogy in the development of comprehensive communicative competence of first year students of a basic Spanish course from a private university. The theoretical framework that supported this study was the Theory of Multiple Intelligences from Howard Gardner (1993) and the proposal of the Chilean educator Veronica Garcia-Huidobro (2004) with her theory of theater pedagogy as an active methodology in the classroom. The research hypothesis that was conducted in the study was: the use of educational theater pedagogy strategy has an effect on the development of comprehensive communicative competence of first year students of a basic Spanish course from a private university. The research question was: What is the effect of using the teaching strategy of theatrical education in the development of comprehensive communicative competence of first year students of a basic Spanish course from a private university? A pre experimental design was used. The sample was an intact group of college students from a basic Spanish course. A pre-test and post-test was used, which were based on questionnaires, plus a final instrument to examine the perception of the participants in the use of the strategy. Statistical analyzes constituted a paired test for independent data and a t test for paired data. It was carried out a descriptive analysis of the means of the average before and after of the theater pedagogy treatment strategy. The results showed that the average mean of both constructs, the integrated communications and theater pedagogy, were higher after treatment, demonstrating that there is a positive effect on the use of theater pedagogy to develop full communication from first year students of a Spanish course. In view of these results, it was concluded that: The teaching strategy of theatrical pedagogy suggested being an effective way to development comprehensive communication in the students; The post-test assessment by respondents indicated an average of the highest mean that evaluation in the pre-test, which is an indicator that there was a positive effect in the use of the teaching strategy of theatrical pedagogy; There were significant changes in participants after treatment with the various activities of theater pedagogy. This implies that the teaching strategy of theatrical pedagogy used in this study was effective for the development of integrated communication in the students, for the many virtues that it offers to the faculty and students.

Deans' voices on service learning: achieving the social responsibility as the university's third mission

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The XXI Century presents multiple challenges for the university to respond to a new style of growth in which complying with the social responsibilities and the development of the civic commitment in students must be the central axis of the measurement as part of a third mission. This research assessed those pedagogical strategies which the schools of the private universities are using to achieve the social responsibility as the third mission and how these strategies are incorporated in the curriculum or to the educational processes used in classes. This qualitative research used a case study design in which seven

graduate schools' of the selected university took part. The data was obtained mainly by interviews, written reactions and documents review. The findings revealed that in the evaluated university the concept of social responsibility is closely related with the mission, evidencing that the formation of professionals with ethical values can contribute to the community's environment and to the globalized world. This evidences that the investigated university is clear and in accordance to the new concept of the university's social responsibility. In addition, five graduate schools favored the development of social-civic skills through strategies as community projects, activities, practices, internship, case study, simulations, and one through service learning. The other school accomplished that through extra-curricular activities. Service learning is applied in only one graduate school as a pedagogical strategy to promote the social responsibility in service and the civic compromise of the future professionals. The other schools completed this mission by interweaving community projects in their curriculum offer and by means of students' associations. The institutionalization of service learning in the evaluated university requires that the academic vice-chancellor nominates a constituent to analyze and establish a clear process in the implementation of the service.

Librarians and interpersonal communication through chat platforms in academic libraries of public higher education institutions

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Academic libraries in the public institutions for higher education in Puerto Rico have incorporated services adapted to the advances of the technologies of information and communication (TIC), to the changing academic programs and the population to which they serve. This investigation concentrates on the virtual reference service in libraries and aimed to describe the process of interpersonal communication among librarians offering virtual reference services, through a chat platform, to undergraduate students in academic libraries of a public educational institution. Through case studies, interviews and document analysis, the objectives were achieved in respect to: the interpersonal communications of the librarians offering said service; manner in which answers to questions were provided in real time; practices used to attain interpersonal communication with students. The findings demonstrated librarians did, in fact, establish communication with the students, considering the characteristics of a virtual information service, Question Point/Ask a Librarian, and the organization and framework of said service to respond to quick communications in real time. Two documents supporting these remote reference services were used: Guidelines for Implementing and Maintaining Virtual Reference Services (RUSA, 2010) and Guidelines for Behavioral Performance of Reference and Information Service Providers (RUSA, 2013). Through RUSA 2010, it was possible to emphasize the importance that personnel in charge of these reference services develop abilities and certain competence in their work. The RUSA 2013 allowed documenting the process of the interpersonal communication between librarians and students. Some approaches used by the librarians to succeed in the interpersonal communication through a chat, offered by the QuestionPoint service, were used individually, even when it was offered in association with libraries of the same educational institution.

A content analysis of academic libraries websites of Puerto Rico

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Academic libraries websites are implementing at a rapid pace a series of web tools design to provide high quality information for their library websites services. This is a result from a shift from traditional collection based to a digital based 24/7 information services. In the light of this growing challenges, this paper is aim to explore the academic library websites of Puerto Rico, analyze their content, tools implemented and tendencies for providing access to information and social communication services.

The overall knowledge from the research will allow a better understanding and give recommendations for future planning and development of academic library website. For the purpose of this study, a methodology of a content analysis was applied and a research instrument in the form of an extensive checklist was developed to evaluate 53 academic libraries of Puerto Rico in a two weeks period. Based on the literature the checklist was divided in two main categories based on its purposes; first, the social communications tools (blog, social network, email, microblogs, etc.) and second, access to the information tools (databases, online public access catalog, educational links, etc.). Findings reveal that academic libraries in Puerto Rico are widely implementing access to information tools; subscription databases, the OPAC, tutorials and educational links were found the most popular. The study also shows evidence of mild integration of social communication tools: blogs, microblogs, email and social networks in their websites. The researcher suggest that academic libraries must prioritize both categories of tools to provide a more balance and complete set of web based information services. Although the checklist was developed as a methodological approach of evaluation, it can contribute in future activities of implementing library website services. This research it is the first of his kind and presents an unexplored dimension of academic libraries website, focusing equally on information and communication tools. The results and suggestions are helpful for librarians in improving the quality of services and content in the academic library websites.

The Power of Spaces

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In this panel session, we will be discussing which space -writing center, classroom and domestic spaces- is ideal for students to develop writings. As a part of this research we will be offering surveys to a group of thirty students that attend the Reading and Writing Center. Finally, the results obtained will be explained. We will contrast student's perception of the influence of space with professors' and analyze the difference and similarities between their points of view. We expect to gather solutions to guide students through the writing process within different spaces. Join us, and feel the power of spaces!

Study of the perception on levels of technological innovation of teachers of public schools: empirical evidence in San Juan ,Puerto Rico

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The education in the world is represented as a human resource of a country, making a big impact in security, economy and health, being this part of life quality of a society. The following investigation presents the exploration, analysis and categorization of the levels of technology, communication and information security that have the public high schools of the city of San Juan, Puerto Rico. With this investigation is intended to demonstrate the deficiencies of the 2016 year to compare them with educational programs of other countries that has incorporated the technology innovations to the public education. The public education is provided has a constitutional right and not as a privilege to ensure that every citizen can benefit from education at no cost. The government is responsible of offering and administrate the necessary resources for the development of the students using a fair, committed, accessible and innovative approach. With the considerations made above, with the passing of the years it has been an increment in the use of technology in the world, taking us to create a technological dependency to electronic devices. This chances are due to the fast technology innovation produced by the constant evolution of societies. It means then, that if the public education wants to meets the necessary requirements to be one of the best educational programs in the worlds, it must go to the forefront of technology. For this purpose, this investigation intends to establish, evaluate and classify, the deficiencies to recognize the level of innovation technology that have a sample of the public high

schools of San Juan, Puerto Rico and based on that conclusion creates a restructuring plan to bring the technological education, with a focus on communication and security, to all the students and not just a part of them.

The cyber language chatñol and the transgressions in drafting with formal codes of writing in learning spanish in students twelfth grade of a public school discript of Guayama

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The purpose of this research was to determine if there is a relationship between the use of cyber language chatñol and transgressions in drafting formal writing code in learning Spanish in twelfth grade students of a public school of Guayama District. The structural format that supported this investigation were part of theoretical principles of the cyber pragmatic from the pragmatic perspective of Francisco Yus (2001); and "The Relevance Theory" from Sperber and Wilson (1986-1995). The questions that guided this study were the following: 1) What's the participants' opinion about the use of chat? 2) What typographical resources, emoticons and grammatical elements of cyber language the participants use with more frequency during chat sessions? 3) What's the communicative process ability and the linguistic elements the participants have during a formal speech? 4) Which Spanish cyber language the students incorporate at the time of formal writing? 5) What relation exists between the use of cyber language Chatñol and the drafting transgressions with formal writing codes on Spanish learning with students of twelfth grade in a Public School of Guayama District? The design used was a correlation with transversal character. Using just one group of 30 students enrolled in Twelfth grade Spanish class, choosing to use a methodological triangulation to guarantee the results' credibility. The instruments of investigation were the following: questionnaires and checklists to evaluate chat sections and the writing of the participants during writing workshops. By using descriptive measures and Chi- squared test with a 0.05 level of significance and two grades of freedom to analyze data. Finalizing the statistical analysis, results of this study revealed that a relationship doesn't exists between the drafting transgressions with formal writing codes on the learning of Spanish with students of twelfth grade in a Public School of Guayama District.

Energy and Clean Technologies

1kw Horizontal axis wind turbine design for low wind speed application

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The project consists on designing, evaluating, and optimizing the design of a horizontal axis wind turbine. Two different blade geometry and configuration were design to generate 1,000 Watts at low-wind speed. Puerto Rico has an average mean wind speed from 3m/s to 5m/s according to the report provided by NREL. Currently wind turbine generates less than 2% of the total electricity in the USA. The Department of Energy aim stop reduces 20 percent by 2020 which bring extensive investments research and development in energy storage and electric grid integration. The numerical results obtained by QBlade indicate that lift to drag coefficient ratio of the blade configuration S833 reports high values at low angle of attack. The power of the S833 blade was approximately 0.5 percent greater than the S822 blade configuration. The results indicate that both configurations work very well at low speeds.

Horizontal Axis Wind Turbine Blade Experimental Analysis

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An experimental study was conducted to compare the output power of a whale flipper and AH 93-W-257 airfoil against the conventional CLARK YM-15 airfoil. The three blades were scale modeled in SOLIDWORKS then it was printed with the AFINIA H480 3D printer. A wind tunnel was used to evaluate the performance of the blades at different Reynolds numbers ranging from 17000 to 33000. Four different angles of attacks were evaluated: 2, 4, 6, and 8 degrees. Initially it was assumed that the two blades flipper whale geometry the most efficient one; however the experimental results shows that the three blade flipper whale the configuration was the most efficient one. The output power of the three blade configuration was 61.97 percent greater than the two blades. It was found that the two blade configuration rotates at low Reynolds number and the three blade configuration rotates at higher Reynolds number.

Development of a Business Plan for an Integrated Light Pole-Wind Turbine System in Puerto Rico

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A multidiscipline team, including IE's, through the appropriate market research is working on a new product development to minimize the island energy costs by using green energy. The benefits of this research are the development opportunities in eolic energy considering the substitution of oil as an energy source and replacing with renewable energy. Objectives include the development of a business plan that proposes replacing the current energy source with eolic energy to impact 95% of the public illumination sources in the island. Due to only having 1% of renewable energy used for power generation, there is an area of opportunity in this business venture. A significant development for public illumination could benefit about 1 million users, with savings to the government of approximately \$ 100 million annually. The research includes the study of market conditions, such as innovation needs and knowledge of Green Energy focused on eolic sources. The deliverable of this research is presenting a business plan for a small wind turbine public illumination system that is 100% self-sustainable. All activities within this research follow the methodology of System Engineering, to ensure the process of developing this creative Eco-friendly initiative take into consideration the customer requirements, design specifications, development and implementation activities. Research will explore potential risks involved in all phases of developing the system as well as recommendations to mitigate or minimize these risks.

Wind Energy Cost Model for Light Poles Application

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Juracan Energy Team (JET) is conducting research to determine the appropriate market application to replace conventional energy sources. The application will result in positive economic and environmental impacts in Puerto Rico. Wind power is the most widely used renewable source of energy because it does not pollute, it is inexhaustible and is competitive from an economic point of view. JET is currently working on the design of an "off-grid" vertical turbine. The appliance will be implemented for public illumination in Puerto Rico. This aims to contribute to the reduction of energy costs and at the same time contribute to market growth of local business. The research is based on exploring the economic aspects of energy cost models in order to calculate the cost of the application. A model was developed by JET, taking into account the total system costs and annual production of energy (AEP) generated by wind resources. The total cost of the unit must be competitive in comparison with other turbines in the

market. The cost of energy must be competitive compared with other renewable alternatives. JET developed a case study to calculate the cost of wind energy in Puerto Rico. The study used a wind turbine similar to the currently being designed by the team. The wind speed data was collected in Gurabo, Puerto Rico. JET made comparisons between different capacity factor in order to reduce the cost of electricity in the field of public illumination Puerto Rico. Based on case study results, JET concluded that as the wind speed increases, the system capacity factor also increases and this produced more energy annually. Therefore, the cost of energy for the public illumination in Puerto Rico.

Modified catalysts for the production of Hydrogen via water splitting

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There is no doubt that the 21st Century will be one of many challenges. Humans are facing a food, water and energy crisis mostly due to an increase in global energy demand, escalation in world population, and continued dependence on fossil-based fuels for energy generation and transportation. If serious environmental problems wants to be avoided, clean and renewables sources of energies have to be developed and employed. Hydrogen has been proposed as one alternative to the use of traditional fuels. However, most of the hydrogen that is produced worldwide comes from non-renewable sources, polluting the environment in the process. The use of catalysts, such as TiO₂ and ZnO, has gained a lot of attention due to the potential to produce hydrogen via water splitting by using the radiation that comes from the sun. Yet, the use of these systems are facing a lot of challenges mainly to the low conversions efficiency caused by the recombination of electron-hole pairs. For these reasons the objectives of this investigation were: a) Synthesize high surface area catalysts (TiO₂NWs and ZnONPs), 2) Incorporate gold nanoparticles to the as-synthesized catalysts and on their commercial forms, and 3) Study the production of hydrogen via water splitting of the modified catalysts. The hypotheses of the study were: a) The catalyst with the higher surface area will produce the highest amount of hydrogen, and b) The gold nanoparticles will enhance the hydrogen production and will allow the use of visible light due to the surface plasmon resonance of the gold nanoparticles. Interestingly, the incorporation of the gold nanoparticles on the surface of all the catalysts enhanced their surface areas. The maximum hydrogen production obtained by using the titanium oxide catalysts were 800 $\mu\text{molg}^{-1}\text{h}^{-1}$ (commercial) and 1,436 $\mu\text{molg}^{-1}\text{h}^{-1}$ (TiO₂NWs). For zinc oxide, the maximum hydrogen production obtained by the commercial form was 559 $\mu\text{molg}^{-1}\text{h}^{-1}$, and 709 $\mu\text{molg}^{-1}\text{h}^{-1}$ for the ZnONPs. The synthesized composites were characterized by X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM), Brunauer, Emmett and Teller (BET) area, gas chromatography (GC-TCD), and UV-Vis spectroscopy. Future works will be focused on producing hydrogen via water splitting by incorporating graphene on the synthesized Au-TiO₂ and Au-ZnO composites.

Optimization of operational parameters for anaerobic digesters used for the production of biogas in dairy farms in Puerto Rico

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Reduction of greenhouse gases (GHG) emissions has been one of the mayor environmental objectives of many nations. Agricultural activities are a significant source of GHG, which contribute to global warming. One of the objectives of sustainable agriculture is to establish environmentally friendly production by limiting the adverse effects to the environment. Production of biogas at livestock facilities offers a good option to manage GHG emissions. Anaerobic digestion (AD) is a natural process that converts biomass to energy in the absence of oxygen. The effluent after AD is a good source of nutrients for the crops. Methane (CH₄) is one of the principal GHG that has twenty-one times more heat trapping potential of carbon dioxide (CO₂). Dairy manure produce from 35 to 55 kgCH₄/animal per year. Dairy sector

represent the most important industry in Puerto Rico, with 35.8% of the total sales of agricultural products. The aim of this research is standardization of operational parameters for biogas production in dairy farms in Puerto Rico. Factors to be considered in the study are: concentration of solids in manure (4, 8 and 12% w/v), hydraulic retention time (HRT; 10, 20, and 30 days), biologic oxygen demand (BOD₅), and temperature. At HRT 30, concentration of 12% produced 2,547 fl. oz of biogas, 8% with 1,772 fl. Oz, and 4% with 1,006 fl. Oz. For the BOD₅, 4%, we can see the top value at HRT of 20 days, after that the value decrease. For concentrations 8% and 12% the BOD₅ values maintain increases at HRT of 30 days. The temperature data for all the concentrations and HRT shows the tendency of the system to follow the same pattern of the environmental temperature. With this data, we can conclude that microbial activity in the process, does not maintain the temperature constant, unless insulation is use. These results offer a more realistic idea about the conditions in Puerto Rico. These data is used as parameters in the calculations of waste management plans for farmers in Puerto Rico.

Synthesized Nanostructures Photocells

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The need for alternative energy sources have recently become a priority. The growing demand for energy, the alarming increase in greenhouse gas emissions and the variability of fossil fuel prices have driven the need for clean energy. In this situation we find the source of a great ally, solar UV is about to achieve the price-per-watt needed to become a competitive source. The discovery of the photovoltaic effect and solar cells to convert sunlight into electricity, is attributed to French physicist Edmond Becquerel in 1839. After discovering the use of different applications of solar cells to improve the efficiency of generation current, and flexible solar panels or other. For this reason we want to achieve forge a solar cell that is effective and in turn easy to apply to any surface, this with the purpose of generating power by a photo catalytic synthesis working next to a viscous product culminating as "energetic painting" .What main in this research has been the synthesis nanostructure silicon surface, which is capable of great reduction in reflectance, being a cheap and scalable method. Silicon is the best options to generate electron hole, which will produce energy to be transported by the anode and the cathode, with a difference of electric potential between the two electrolytes. To interaction dissolved cations moving towards the cathode, we are using silver nanowires, for their different magnetic and electrical properties. As for the anions toward the anode, we will use copper nanowires for ease of synthesis, low cost and effective transfer of electrons. For this purpose, the silicon nanowires have been synthesize hyper branched monocrystalline using wafer holder and the etching method. The synthesize product will be characterized with various techniques to know their morphology, diameters and lengths. These techniques are SEM, BET and XRD. The last three synthesis to build the new solar cell performance in terms of cost and simplicity thoughts about this process to be the most promising for our task realizer.

Vertical-axis wind turbine (vawt) design for integrated light pole wind turbine systems

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The present paper contributes to the modeling of unsteady flow analysis of vertical axis wind turbine for urban application. Double Multiple Stream Tube model was applied for the performance prediction of straight bladed fixed pitch VAWT at low wind speed. Numerous of airfoils were analyzed, five airfoils were chosen because of their camber, symmetry and drag polar performance. Afterward the turbine geometry was selected using an iterative process with the different length parameters. The following parameter were constraint to a distance of 1.5m by 1.5m. Q-Blade open-source software for wind turbine analysis was used to iterate the different design parameter, this program makes used of Double

Multiple Stream-tube Model for the analysis. The radius, height and chord were varied and the best performing geometry was picked with a radius of 0.7m, 1.2 height and 0.25 chord length. The airfoils used for the design process were the DU 06-W-200, NACA 0012, NACA 23015, NACA 24112 and OAF095. The NACA 23015 airfoil had the best performance with a power coefficient of 0.41 and approximately 85 Watts at wind speed of 5.50 m/s.

A new approach of the synthesis of SiO₂ nanowires by using bulk copper foils as catalyst

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Silica nanowires (SiO₂NWs) have attracted considerable attention over the last decades due to their diverse properties and broad range of applications. Among them, it is well-known the capacity of SiO₂NWs to emit strong blue light. It is also widely recognized the versatility of this material as biosensor, since it can be easily functionalized in order to respond to several targets. Other applications include their potential use as anode electrode for lithium-ion batteries, or as protective layer against corrosion by exposure to the environment. In this regard, the use of a metal substrate is of paramount relevance; therefore, an adequate contact between the substrate and the nanostructures is required. Especially numerous and varied are the procedures for the growth of SiO₂NWs, being one of the most employed the so-called vapor-liquid-solid (VLS) method. By this mechanism, the nanowires grow from a metal nanoparticle when the adequate gaseous precursor is added. However, the main drawback of this mechanism resides in the need of a Si substrate for the synthesis of the SiO₂NWs. Apart from the original Au-Si system, a broad variety of other metals such as Fe, Co, Ni or Cu may act as catalysts for the growth. Particularly, of special interest is the case of copper, which is present in a large majority of electronic devices. Furthermore, the Cu-Si phase diagram shows a eutectic point at 802 °C (16 wt% of silicon) promoting the formation of a liquid alloy at an accessible temperature for a relatively low concentration of silicon in copper. This work presents a novel procedure for the growth of SiO₂ nanowires directly from polycrystalline copper foils. The single-step synthesis procedure consists of a thermal treatment at 900 °C without the need for additional catalysts. As a result, nanowires with an average diameter of 100 nm are synthesized. A systematic study undertaken at different stages of the SiO₂NWs growth confirmed the generation of nucleation centers on the Cu surface as well as revealed the existence of an intermediate gaseous SiO species at the synthesis temperature, which promotes the growth of the SiO₂NWs via a VLS mechanism.

Metal catalysts supported on silica microspheres for the production of synthetic diesel

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Nowadays we are facing the necessity to find new ways to reduce the use of fossil fuels. This need comes from the excessive use of these energy sources, and the well-known adverse environmental effects derived from its uses. Currently the fossil fuels represent about the 70% of the world energy sources. This dependency has brought some important problems of contamination such as global warming and climate change, acid rain, or alterations of the carbon cycle, among others. The transportation sector is the largest consumer of petroleum-based fuels in the world, liberating to the atmosphere vast amounts of CO₂, NO_x, SO_x, lead, mercury, and many others. These pollutants are not only harmful to the environment but also to the human health, causing lung and heart diseases, cancer, etc. The increase of price and demand of these fuels and the contamination generated by them makes imperative the search of viable clean technologies looking for the production of clean fuels with high commercial value. Contaminants produced by the combustion of fossil fuels represent a challenging future for the development of new clean fuels. In this regard, an interesting alternative consists in the

synthesis of clean diesel fuel through the Fischer-Tropsch (FT) reaction. This method produces clean diesel starting from a mixture of H₂ and CO obtained from renewable or not renewable energy sources. This synthesis produces high weighted hydrocarbons with high purity. The fuel produced by this process is clean since it does not have aromatic compounds or sulphur or nitrogen-based compounds, preventing the production and release of NO_x and SO_x during combustion. The FT processes require the use of heterogeneous catalysts. These catalysts are based on active metals (i.e. Co, Ru or Fe) highly dispersed on the surface of appropriate supports. In this research SiO₂ microspheres, synthesized by using the Stöber procedure, have been used as support for the deposition of different metals on the surface. Preliminary catalytic results are very promising and show that metal microparticles dispersed on the surface of SiO₂ microspheres could be efficiently used for the synthesis of paraffin products with different distribution.

Synthesis and characterization of graphene flakes to be used in the development of electrodes for Li-ion batteries

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One of the main problems in our society is the energy production and storage. Ion-Li batteries are commonly used as an alternative for energy production but have the disadvantages of a poor recharged cycles and the possibility of fire. Researches are done to develop efficient anodes and cathodes for batteries and one of the possible alternatives is the use of graphene. Due to its unique planar structure, transparency, mechanical strength, thermal properties, and electronic conductivity, graphene is a very promising material for nanoelectronic devices, sensors, energy-storage and/or transparent conducting electrodes applications. The exceptional properties of graphene are a consequence of the continuous network of hexagonally arranged sp²-bonded carbon atoms in a 2D-structure. Among the different synthesis processes to obtain graphene (i.e. chemical exfoliation, mechanical cleavage, epitaxial growth or chemical vapor deposition-CVD), the last one (CVD) is considered as the most promising procedure to obtain continuous graphene flakes, with very low level of defects. Although the presence of unwanted byproducts and structural damages is unavoidable, this method is one of the most suitable for large-scale and controllable synthesis of graphene. Commonly, the synthesis of graphene by CVD requires a copper or nickel sheet as substrate, and alcohols or methane as carbon source. In this research, a CVD method, slightly modified with respect to the standard procedure, has been used to obtain graphene flakes (see Figure 1). Thus, a mixture of ethanol:N₂:H₂ was used to obtain a blue plasma at high temperature, responsible for the synthesis of graphene. A complete analysis of the as-synthesized graphene flakes has been performed using a combination of tools including scanning and transmission electron microscopies (SEM and TEM), Raman spectroscopy, X-ray photoemission spectroscopy (XPS), atomic force microscopy (AFM) and infrared spectroscopy (FT-IR).

Synthesis and characterization of carbon nanotubes to be used in the development of new ionizing radiation sensors

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Detection of ionizing radiation is crucial in different fields such as energy, national security, biological and nuclear research. In general, the systems for the detection of ionizing radiation usually have one or several of the following drawbacks: incapability to produce stable signals, expensive and complicated manufacturing processes. Single Walled Carbon Nanotubes (SWNTs) have attracted much interest for the design of advanced nano-devices, due to its excellent mechanical, optical, thermal properties and

electrical conductivity. One of these potential applications is the use of SWNTs as radiation sensor. For this purpose, the critical steps in the design and fabrication of devices are focused on the growth of SWNTs into controlled architectures and onto appropriate substrates. Until now, the conventional way to obtain patterned vertically aligned (VA) carbon nanotubes (CNTs) is based in using a careful positioning of the metal catalyst (e.g. by evaporation, use of photoresist masks, or even Ar+ sputtering) in localized positions, from where the CNTs grow. Such catalyst patterning requires a precise control of the process with a long list of complicated steps. An easier method for depositing the catalyst consists in using a wet-based dip-coating approach, which provides some advantages in cost and scalability. A similar method has been used for patterning the growth of high-quality VA-SWNTs on Si and SiO₂ based on the difference of surface wettability of the catalyst in both materials. In the literature, TiN has been chosen as a suitable electrically conductive supporting material for CNTs growth. This includes the use of TiN as the selected substrate, or as a barrier layer on crystalline Si. When using a Si substrate, the formation of metal-silicides during the thermal treatment (annealing step) complicates the synthesis process. In this way, dense mats of vertically aligned multiwall carbon nanotubes have been grown on TiN substrates by using different precursors, including ferrocene or different metals as Fe, Ni, or Co as catalysts. Besides its electrically conductive properties, TiN seems to increase the quality of the grown CNTs (i.e. much thinner CNTs with higher density as compared with those obtained on Si substrates). In this research, SWNTs have been synthesized by CVD, using ethanol at low pressure as carbon source. The characterization of the synthesized materials has been carried out by electron microscopies (SEM and TEM), X-ray diffraction (XRD), and Raman. This material is currently being used for the design and development of a new prototype of radiation sensor.

Wind energy assessment for lighting pole applications

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The aim of this project is to perform a wind energy forecasting for commercially available vertical axis wind turbines in urban light pole applications. The study considers two off-the-shelf wind turbines with rated powers of 200W and 300W and four different types of light bulbs for light pole applications. In particular, the study considered a conventional light bulb of 200W and three LED lightbulbs with 40W, 60W, and 90W, respectively. In the investigation, the power curves for each wind turbine were used in conjunction to actual wind speed measurements at Universidad del Turabo to estimate the energy output. As shown in the results, the 300W machine will be required to energize a 40W LED bulb. The results will be used in the development of a vertical axis wind turbine for the U.S. Department of Energy Collegiate Wind Competition 2016.

Environmental Technologies

Urban vegetation as an influence factor in real estate value sales

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One of the precepts of ecological economy is that humans should live in a sustainable way with other species and natural resources of the planet. If this precept is taken and considered in the light of current urban development models, it is clear that it does not hold. Urban development models used for the past decades in Puerto Rico require a total alteration of land and its natural attributes, including all its vegetation. Today this model is challenged by society in part because of the negative effects it takes on the environment. Society now looks for urban development models that reduce its negative impact on natural capital. Modern-day urban development models adopt land conservation practices, specially

vegetation conservation. In a highly monetized society, vegetation and trees in an urban settlement are seen more as a cost than a benefit. So how can values for many intangible services and functions that urban vegetation offers be estimated? Is the presence of vegetation in a residence a reason compelling enough to influence a buyer to acquire it? Is the influence of vegetation reflected in the real estate price? This study studies the monetary importance of vegetation and its relationship with residential house price. The study was based on the use of Geographic Information Systems.

Application of DypB as a biomarker in bacterial lignin degradation

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Alternative energy sources are essential to plan for the nation while harmonizing environmental protection, overall health and society comfort. As a measure of preventive public health, other means of energy have become paramount. Biomass can be used to generate biofuels by microbial transformation of its chemical constituents. As learned from bioremediation research, microbial capabilities for transformations have been undermined based on selective experimental approaches that underestimate the microbial functional diversity. The microbial diversity in nature is expected to change as oxygen becomes limited. Anoxia may occur in small (nm) or large (m) regions in soil and water where plant biomass and residual wastes are formed, developed, or processed. Tropical conditions may have favored transformation capabilities due to perennial microbial activities. Lignin represents the most recalcitrant fraction on plant debris for its decomposition and access to highly energetic fractions. Fungi degrade lignin but are difficult to manage in applied processes. However, few bacteria are reported to degrade lignin by dye-decolorizing peroxidases (dypB). We proposed to develop a molecular tool for the detection and characterization of lignin degrading bacteria based on selected catabolic genes (dypB). The prevalence of dypB genes in nature will be assessed by bioinformatics analyses, community analyses, and enrichment cultures. Initially, genetic homologues for dypB gene from *Rhodococcus jostii* (gram-positive bacterium) are sought among sequence genomes. In search of a broad coverage, Actinobacteria has produced the most relevant homologues within the gram-positive bacterium. The search for a gram-negative equivalent lead to the conclusion of necessity of two distinct biomarkers. Nucleotide sequence homologues to dypB have been aligned to design oligonucleotide primers and assess their prevalence across Neotropical ecosystems and active lignin-degrading consortia. Alignment of representative organisms demonstrates various possible primers sites. The biomarker proposed will disclose the dypB gene diversity in nature to guide potential application for biofuel generation.

Colonization factors among hexadecane-degrading bacteria for efficient soil remediation

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Rhizoremediation has improved by efficient combination, based on colonization factors, of plants and microbes to reduce the harm of pollutants in nature. Bacterial contribution to alkane degradation was documented for polluted and temperate sites. Which colonization factors are harbored in hexadecane-degrading bacteria for efficient soil rhizoremediation? We hypothesized that if we stimulate specific strains naturally selected in soil then plant development will be enhanced and remediation will take place. The objective is to evaluate which strains of hexadecane-degrading bacteria (HDB) promote plant development in the presence of hexadecane. Soil samples, collected at Caño Martín Peña, were inoculated, as consortium, on rich media. HDB were isolated by aerobic cultivation on mineral media supplemented with hexadecane as sole carbon source and subjected to 16S rDNA sequencing. Colonization factors were evaluated among isolates, such as polyhydroxyalkanoates (PHA) production and resilience test that are advantageous for plant development. Results have demonstrated ten strains capable of producing PHA, important in the production of bioplastics and rhizosphere survival. All

prospects have been able to grow in a 1% hexadecane concentration. Colonization factors tests revealed diverse capabilities among fifty-eight strains: phosphate solubilization (7%), production of indole acetic acid (3%), ammonia (17%), protease (34%), and siderophore (4%). Among fifty-eight strains, twenty strains harbors most of the colonization factors and includes members of the genus *Klebsiella* and *Pseudomonas*. HDB prevails across Neotropical ecosystems, despite pollution level, are phylogenetically diverse, and harbors novel genetic variants. These alkane-degrading bacteria provide novel isolates to deal with pollution and disclose processes in nature.

pH effects during propranolol degradation by photocatalysis using TiO₂

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Tons of pharmaceuticals products are annually produced worldwide to be consumed by humans or animals. Wide dissemination of these products at low concentrations mainly in the aquatic environment is evident today. Such concentrations have been detected in aquatic media such as influents and effluents from wastewater treatment plants (WWTP), surface waters (rivers, lakes, streams, or estuaries, among others), seawater, groundwater and drinking water. When introduced into the environment, pharmaceuticals may affect the same pathways in animals having identical or similar target organs, tissues, cells or biomolecules. Certain receptors in lower animals resemble those in humans; however, these may be absent, which means that dissimilar modes of actions may occur in lower animals. Propranolol is a water-soluble API with established toxicity to some aquatic species. The effects of propranolol on aquatic organisms have been studied (Huggett et al. 2002; Cleuvers 2005; Dzialowski et al. 2006; Robinson et al. 2007; Ericson et al. 2010). The exposure of mussels, medaka fish, algae's, rotifers, and daphnia to propranolol has been investigated revealing adverse effects. UV light irradiation of the TiO₂ catalysts generates electron-hole pairs, which can be represented as localized electrons (Ti³⁺) and holes (O⁻ and/or •OH radicals). Some of these electron-hole pairs disappear by recombination on bulk TiO₂, while other electrons and holes diffuse to the surface of the TiO₂ catalysts to react with molecules, leading to photocatalytic reactions, such as hydrogenolysis, and the formation of oxygen-containing organic compounds (Masaku and Masato 2003). That proximity or adsorption between TiO₂ and the pharmaceuticals is transcendental for the reaction in order to increase the reaction rate in photocatalytic reactions. In this regard, the pH may markedly affect the charge of propranolol and TiO₂ in solution. Molecules with the same charge repel one another, and prevent them from coming into contact; on the contrary, those with opposite charge will attract each other. For pH > pHzpc the surface charge will be negative, and at lower pH (pH < pHzpc), the surface charge will be positive. Propranolol has a pHzpc of 5.8 (Ye et al. 2013) and TiO₂ has a pHzpc of 6.25 (Hoffmann et al. 1995). On the basis that photocatalytic reaction takes place at the surface of the catalyst, any improvement on propranolol and TiO₂ adsorption will increase the degradation of propranolol. The theory of surface charge suggests that the best charge affinity will be found at pH range from 5.8 to 6.25.

Development of nanostructured materials for the degradation of organic compounds in water

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Zinc oxide nanoparticles were synthesized using zinc acetate dihydrate as precursor. The product was successfully characterized by scanning electron microscopy, X-ray diffraction and energy dispersive spectroscopy. The photocatalytic activity of the synthesized zinc oxide nanoparticles was determined by measuring the photocatalytic degradation of benzophenone-4 in systems with different catalyst loadings. The photocatalytic activity was studied in the range of wavelength from 200 nm to 400 nm. A concentration of 1.0 g/L of ZnO nanoparticles was optimal since it promoted a higher photodegradation

activity. SEM images showed the formation of sphere-like ZnO nanoparticles, EDX confirmed the presence of zinc and oxygen in the sample, and according to XRD results, the crystalline phase of ZnO was wurtzite.

Remediation by Photocatalytic Degradation of PPCPs in Aqueous Solutions.

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Water is an essential resource for humankind and biomes. Actually, the pollution of the water resources, specially the contamination of the fresh water is great concern in our society. An increase in water pollution compromises the quality of this resource. Some studies reveal the presence of Pharmaceutical and Personal Care Products (PPCPs) in waters in many countries, including in the US. The PPCPs are catalogued as emerging contaminants and environmental agencies around the world try to establish regulations for these emerging contaminants. Different contaminants as estrogens, antibiotics, antihistamines, sun blocks and other are detected in natural and wastewater. Develop of new and more efficient method for degradation of pollutant in water increase the research in this area, especially in the AOPs. The aim of this project is to study the degradation rate of PPCPs products (antibiotics) using different catalysts based on TiO₂ and related materials to increase the efficiency of these processes.

Tropical Bioprospecting Venture for agricultural innovation

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Climate variability in Puerto Rico has dislocated agricultural activities and forest processes. In parallel, microbes exhibit catalytic roles for environmental resiliency and economic innovation, such as degradation of lignocellulosic compounds, mobilization of nutrients, transformation of pollutants, and antibiotic production. Our main objective was to isolate and characterize novel biocatalysts contributing to environmental resilience. Soil or water samples were cultivated in a media to demonstrate biochemical functions of interest: lignin degradation, xylose fermentation, antimicrobial activity, arsenic transformations, and chemical interaction plant-bacteria. Colonies conducting specific biochemical functions were isolated for further characterization based on 16S rDNA. Eleven strains grew on lignin, including four *Shewanella* strains and three *Staphylococcus* sp. A new media was developed to demonstrate xylose fermentation. Thirty-six strains, dominated by Gram positive cocci, fermented xylose. Bacteria (26) from the San Juan Bay Estuary exhibited antimicrobial activity against reference bacteria. Strains closely related to *Alcaligenes faecilis* inhibited the growth of Gram positive bacteria. Among putative alkane-degrading bacteria, *Klebsiella* strains demonstrated broader repertoire of colonization factors for acquisition of critical nutrients in interaction with plants. Bioinformatics analyses proposed a sentinel region for detection of bacterial transformation of arsenate. Further genetic and biochemical characterization are in progress. Bacterial isolates from diverse ecosystems, reported for the first time, contribute biochemically to process of great concern, such as biofuel production and the generation of antimicrobial metabolites. The climate variability leads to microbial shifts and flourishing of novel biocatalyst for agricultural innovation and advanced student training in bioprospecting. Sponsored by USDA Hispanic Serving Institution Program.

Carbon Monoxide converter emission by Osmium support in Titanium Oxide and Zirconium Oxide

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Carbon monoxides contribute to several environmental hazards to humans, including respiratory illness, global warming, and acid rain. Many transition metals such as cobalt, platinum and gold are used in

heterogeneous catalysis to reduce pollution emissions. One significant drawback to these materials such as platinum and gold is their high cost. To address this concern, a search for lower cost, alternative materials has led to the study of transition metal catalysts. Osmium is proposed as a good candidate because it has been shown to be active for CO oxidation and is less expensive than gold and platinum. The Osmium electron configuration [Xe] 4f¹⁴ 5d⁶ 6s² is similar to Platinum Electron configuration [Xe] 4f¹⁴ 5d⁹ 6s¹. The high orbital d deficiency causes a stronger interaction with negatively charged molecules. 10 % of Osmium and Platinum were supported on TiO₂ and ZrO₂ prepared by solid by solid, sol-gel (SG) and incipient wetness impregnation (IWI) techniques. The catalysts have been characterized by surface area analysis, X-ray photoelectron spectroscopy (XPS), X-ray diffraction (XRD), and diffuse reflectance Fourier transforms infrared spectroscopy (DRIFTS). The characterization demonstrated that this metal oxide phase is more dominant on the sol-gel and solid by solid impregnation support than on wetness impregnation. The complete oxidation of CO to CO₂ could also be observed below 100°C for the sol-gel and solid by solid impregnation.

Natural and Applied Science Innovational Studies

Exceptional responders to therapy: the new research pathway for cancer

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Cancer is a term used for many deadly diseases, depending on the organ or tissue from which it is originated, in which abnormal cells divide uncontrollably, creating a malignant tumor that may invade other organs. Essentially, cancer is caused by changes to genes that control the way cells function, especially how they grow and divide. The Exceptional Responders Initiative (ERI) is the most recently presented approach in cancer research, which studies exceptional responders to cancer therapy: those who received a treatment in which fewer than 10% of patients had a complete response (CR) or a durable partial response (PR) based on clinical study data or historical experience in the context of the patient's tumor type and achieved either a CR or a durable PR. Considering the genetic basis of cancer, the purpose of ERI is to understand the molecular foundation of exceptional responses to treatment in these patients. ERI represents a revolutionary approach for cancer research that hopefully will get biomedical science closer to eradicate this deadly disease.

Nesting grounds and molt patterns of migratory landbirds wintering at Jobos Bay, Puerto Rico revealed through stable hydrogen isotopes

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Stable isotopic methods using the measurement of stable hydrogen isotope abundance in feathers of Neotropical migrant songbirds that breed in North America, can be used to connect the breeding and wintering grounds of individual birds. The feather deuterium isoscape for North America is much better known and structured than those for the Neotropics. Herein we demonstrate how feathers sampled at Jobos Bay, Puerto Rico can be used to infer breeding origins in North America. Using Bananaquits as our local baseline, our preliminary results indicate that some over-wintering Northern Waterthrushes and Yellow Warblers originate from breeding grounds at latitudes as high as mid- to upper Hudson's Bay, Canada and that some Yellow Warblers, Prairie Warblers and Northern Waterthrushes may experience eccentric molts and/or molts en route to Puerto Rico. Future studies involving feather sampling and light-level geolocators will help pinpoint more specific breeding assignments and refine conservation efforts for these species.

The effect of Pomegranate exerts on chemoprevention of experimentally induced mammary tumorigenesis by suppression of cell proliferation and apoptosisBhattacharyya, Piyali¹; Anupam, Bishayee²¹Universidad del Turabo, Gurabo, PR; ²Northeast Ohio Medical University, Rootstown, Ohio, USA

Breast cancer is the second leading cause of cancer-related death in women in the United States. It is the most frequently diagnosed cancer and the primary cause of cancer-related death in women worldwide. An increased understanding of the correlation between healthy diet and reduced incidence of cancer, including breast cancer, has led researchers to investigate breast cancer preventive effects of dietary natural products. The fruit pomegranate (*Punica granatum*) is gaining importance because of its various health benefits. This study was initiated to investigate chemo preventive potential of a pomegranate emulsion (PE) against 7,12-dimethylbenz(a)anthracene (DMBA) rat mammary carcinogenics. The animals were orally administered with PE (0.2–5.0 g/kg), starting 2 wk before and 16 wk following DMBA treatment and the first time that oral administration of PE 3 times a week for 18 wk exhibits a significant chemo preventive effect in DMBA classical rat model of chemically induced breast cancer. PE exhibited a striking reduction of DMBA-induced mammary tumor incidence, total tumor burden, and reversed histopathological changes. Immunohistochemically studies showed that PE increased intratumor Bax, decreased Bcl2 and manifested a pro apoptotic. Pomegranate bio active phytoconstituents could be developed as a chemo preventive drug to reduce the risk of breast cancer PE dose-dependently suppressed cell proliferation and induced apoptosis in mammary tumors. Thus, PE exerts chemo prevention of mammary carcinogenics by suppressing cell proliferation and inducing apoptosis mediated through up regulation of Bax and down regulation of Bcl2 in concert with caspase cascades. Thus this interesting result coupled with a safety profile may advance the development of pomegranate phytoconstituents as a complex chemo preventive drug to reduce the risk of breast cancer.

Networks, Telecommunications and Informational Systems

Big Data in healthcare data application: a preliminary study

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Healthcare naturally generates a vast amount of data, driven by record keeping, and patient care. This research describes the field of big data generally and its major applications, then it presents the potential of big data analytics in healthcare. A general architectural framework, methodology and tools based on a literature review will be presented. This research provides an overview of big data analytics for healthcare and other fields. Big data analytics in healthcare is progressing into a field for providing insight from very large data set and improving results for a reduced costs. Although its potential is great; however there are remained challenges to overcome.

Software defined radio for cubesat ground stationNguyen, Hoang¹; Vo, Hien²¹USTH, Hanoi, Vietnam; ²Universidad del Turabo, Gurabo, PR

The QB50 mission, a EU FP7 project will demonstrate the possibility of launching a network of 50 CubeSat built by Universities Teams all over the world as a primary payload on a low-cost launch vehicle to perform first-class science in the largely unexplored lower thermosphere. NSF supports the QBUS project (Turabo, Stanford, Colorado, Michigan) to build 4 2U cubesat for the QB50 project. The Space segment is CubeSat constellation and Ground Segment - Ground Station is facility to communicate with

satellite in orbit. Design and implement a Ground Station that able to receive and decode satellite signal using the flexible software defined radio platform.

Using Twitter for cyberbullying prevention: A pilot study in Hispanic communities

Bernabe, Kasim; Prieto, Alexandra

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Our research aims to determine and analyze how different social media users are employing Twitter for cyberbullying prevention. We want to discover if a higher use of social media features (like photos, videos, hashtags, hyperlinks, etc) are an indicator of an audience resonance. Our study is carrying out a quantitative content analysis of 1000 tweets from 2015 that includes the hashtag (#) or word ciberacoso. Tweets are being coded and analyzed regarding the following variables (1) topic of the tweet(events, news, opinions, acknowledgement, testimonials, and prevention tips), (2) purpose of the tweet (information, communication and action). If a tweet promotes mobilization, it will be coded in one of these categories: awareness, share tweet, comment or give an opinion of a topic or cause, participate or attend an event, donate for an activity, join an activity or organization or others. (3) type of Twitter user (media, citizens, professional, academic, government, companies, journalist, artists, and others. (4) use of supportive resources (photos, links, retweet (5) Use of communicative features (retweets, replies, hashtags). (6) sentimental analysis of the tweets: if they are positive, neutral or negative. Preliminary results indicate that most of the tweets are about tips for cyberbullying prevention followed by events (for example, workshops, conferences, seminars, etc). People are informing mostly regarding cyberbullying prevention than having conversations or mobilizing users to do something about it. Among the few tweets that we have encountered that promote mobilization, most of them are about awareness. Hyperlinks are the supportive resource most used so far, while photos are most common than videos. Hashtags are not used widely for cyberbullying prevention. Throughout an investigation carried out by ADL, the Anti-Defamation League, it has been discovered 24% of students ages 12 to 18 years old reported being cyberbullied during their lifetimes. 8.1% of these students are bullied because of their race or ethnicity. In addition, these target cyberbullied students show diverse type of effects: 14.18% depression and 11.82% anxiety. In addition, 47% of high school students told nobody at all of what they were going through. For this reason, we have decided to investigate how social media, especially Twitter, plays a prevention role in Hispanic communities.

Public and Environmental Health

Antimicrobial activity of *Annona muricata*, *Ananas comosus* and *Carica papaya* against *Enterobacter aerogenes*

Agosto, Genesis

Universidad del Turabo, Gurabo, PR

Enterobacter aerogenes is a gram negative bacteria that causes nosocomial infections in immunosuppressed patients. This bacteria has mechanisms of antibiotic resistance, making it difficult to treat infections caused by *E. aerogenes*. New drugs are needed to infections with antibiotic-resistant strains. *Carica papaya* plants, *Ananas comosus* and *Annona muricata* has been shown to have antimicrobial properties against pathogenic bacterium, however none of these plants have been tested against *E. aerogenes*. This research aims to find antimicrobial properties in the leaves of the plants *C. papaya*, *A. muricata* and *A. comosus* against the microorganism *E. aerogenes*, to increase awareness of existing antibiotics and natural remedies. The alcohol extraction method was used to obtain the extract from the leaves of each species. The leaves were macerated and diluted in 250ml of alcohol at 100% in a lidded jar for 72hrs at room temperature. The extracts were filtered by vacuum filtration to remove

impurities and were concentrated by evaporation for 48 hrs. The Kirby-Bauer method was used for the antibiosis. The culture of *E. aerogenes* used was provided by the Universidad del Turabo Centro de Barceloneta. Statistical student t-test ($P < 0.98$) and antimicrobial activity of the extracts used was found, in turn *E. aerogenes* resistance against ampicillin was also demonstrated. It is recommended in the future to do biochemical tests to identify chemicals responsible for the antimicrobial activity found in leaves of plants used.

Presence of bacterial flora in artisanal and commercial honey in Puerto Rico

García Collazo, Cid Marie

Universidad Del Turabo, Gurabo, PR

Honey is a rich and nutritious substance produced by *Apis mellifera* bee. It is used as medicine or as an effective remedy against various infections since ancient times. Much is known about the use of honey, but little is spoken about the bacteria found in the natural flora of honey. Particularly, how they are present in pure artisan honey versus pure commercially honey. The main objective of this research is to compare and describe the bacterial flora of the two types of pure honey (artisanal versus commercial) in Puerto Rico. The applied methodology consisted of both qualitative and quantitative analysis of three samples of honey, two artisan samples from (a hive from Mayagüez, and a Beekeeping School in Camuy) and a commercial sample brand (El Cafetal). Samples were serially diluted 10⁻¹ to 10⁻⁵ and inoculated into culture medium Tryptic Soy Agar, in triplicate, for colony counting. Additionally, were isolated by grooved and Gram staining was to the colonies in each sample honey. On all three honeys evaluated average number of colonies for artisan honey were obtained from 56 and 67 respectively, and 88 for commercial honey. Presence of Cocci and Bacillus, Gram positive and Gram negative was found; and 14 unknown bacteria (4, 5 and 5, respectively) were isolated. According to this research, we conclude that the largest population of bacteria was obtained by commercial pure honey and a predominant presence of Cocci, and Gram negative bacteria between all three samples. For future studies it is suggested: biochemical tests to identify unknown bacteria isolated and relate them to the bacterial flora of the bees.

Social and Human Sciences

Oscar López Rivera: ¿terrorista o preso político?

Velázquez Rojas, Yomara

Universidad del Turabo, Gurabo, PR

This work is an investigation of the Puerto Rican nationalist Oscar López Rivera. This research examines the reasons of why some people consider López Rivera as a "terrorist" and why others consider him as a "political prisoner". During my investigation I studied about the life style of Oscar López Rivera, his arrest, his ideals and the motives and reasons that led him to join the organization of the Armed Forces of National Liberation (FALN). I studied about the Puerto Rican political prisoners during the last hundred years and the organizations that have been supporting them and still support López Rivera. Also in this research I studied people who have been influential nationalist as was their leaders Pedro Albizu Campos and Lolita Lebrón. I also mentioned how the government of Puerto Rico in those years created the "Ley de Mordaza" affecting these nationalists witch were persecuted, abused and intimidated over the years.

La emigración en los cuentos de José Luis Gonzáles

Plaud Pabón, Nangesshie P.

Universidad del Turabo, Gurabo, PR

The present work is a documentary research on the Puerto Rican migration and how this has led to countless problems in Puerto Rican society throughout its history. The primary interest is given to know the reasons of why Puerto Ricans decide to migrate and concluded that the primary reason is the economic crisis. This is because Puerto Ricans seek to improve their financial situation in alternatives offered outside the country, primarily in the United States. But it is forgotten that actually the Puerto Rican migrator undergo other situations such as the discrimination, the misery of missing their homeland, customs, climate and families. The short tales written by José Luis Gonzales show the approach of the story, because in his writings he tells the true experience in which all Puerto Ricans that decides to migrate face.

Do cultural attitudes to disabilities among hispanics prevent access to screening, assessment, and interventions?

Ramírez, Juan

SUAGM-UT-South Florida, Florida, USA

According to the reports of the Centers of Disease Control and Prevention (CDC), there is a consistent increase in the prevalence of autism in the United States, from 1 in 150 reported in 2007, 1 in 110 in 2009, to 1 in 88 for the last report. Based on these findings, the CDC urged autism to be recognized as a public health emergency. Prevalence of Autism Spectrum Disorders (ASD) remains low among Hispanics; it has been proposed this is a result of under-diagnosis of the conditions due to multiple factors that among others include attitudes, culture, and values. This article is intended to revise literature on the concept and set the basis to propose the topic as a subject for further research.

Cuidate – an educational intervention on sexual health and HIV prevention for youth in a University setting

Aragunde-Kohl, Úrsula; Pagán-Colón, Lourdenisse; Casiano-Guzmán, Ashley; Padrón-Pérez, Grace; Torres-Lugo, Natacha; Oliveras Rodríguez, Carlo A.

Universidad del Turabo, Gurabo, PR

Forty five (45%) of all cases of HIV/AIDS ever reported in Puerto Rico occur between the ages of 15 to 34 . In 2013 CDC funded testing events revealed Puerto Rico's positivity percentage was of 1.2%, ranking Puerto Rico #6 out of 60 CDC funded jurisdictions . In response to the rates of infection among youth in Puerto Rico and the need for comprehensive sexual education in 2014 the University of Turabo (UT) pioneered Cuidate! An evidence based intervention for Latino youth in it's psychology bachelor's program; this in order to provide HIV/AIDS prevention information and testing directly to students. Through comprehensive modules that target common factors on culture, family values and sexual practices in it's first year the program was able to impact more than 250 students in just the Caguas campus. The peer led intervention that started in 2014 funded by the Department of Health and Human Services of the United States (HHS) aims to impact through 2014-2016 more than 800 students, and deliver testing and education to communities outside of campus. This is possible through an innovative partnership between the government office of "Comunidades Especiales" and a feminist led community based organization Taller Salud. This also provides the program an out of campus target where communities in need of information and services are receiving comprehensive information on sexuality as well as a link for other health services outside of family planning and HIV prevention. Preliminary data shows that students in campus and communities being impacted have had fragmented information on sexuality and misconceived ideas about HIV, HIV prevention and therefor-healthy sexual practices.

Construction and validation of the first scale that measure family organizational and administrative functionality

Vélez Candelario, Sandra

Young Human Capital Research Center, Corp., Ponce, PR

Construction and validation process of the first scale that measure Family Organizational and administrative Functionality to identify organizational and administrative styles apply on this human capital organization. The test use a frequencies scale: always (4), almost-always (3), sometimes (2), never (1), in thirty four reactive. Two areas have ten reactive each (Organizational Culture and Leadership) and the other two areas have seven reactive each (Communication and Environment). The test was submitted to twenty judges that evaluate the reactive. This group selected 38 from 61 reactive giving them a 90% of general value. Finally was selected 34 reactive. The internal consistency and the Factor Analysis were calculate after submitted the test to a group of a hundred children's. The consistency with this sample is .89 (Cronbach's Alpha). The Factor Analysis process show that every area that the FOF Test pretend measure can be recognize like independent factor aligning the most of the items like judge's did during the reactive validation process. During this project also tabulated the results to calculate the percent of the general level of FOF in two different groups, 50 children's with low General Percentage Average (GPA, by English abbreviation, 2.49 to down) in school and 50 with High GPA(2.50 to up) in school. The young human capital with lower academics GPA identify their family without or low FOF % and the young human capital with high academics levels identify their Family Organizational Functionality with moderates or high %. That result assumes that the organizational and administrative functionality in the family has influences in the levels of the academics productivity of their young human Capital.

Voices of Families within a Child Joint-Custody Arrangement: Qualitative Meta-SynthesisFericelli Castillo, Paul-Jesus¹; Aguirre, Regina²; Craig, Brad, S.³¹Universidad del Turabo, Gurabo, PR; ²University of Texas at Arlington, Arlington, Texas, USA; ³Between Two Homes, LLC, Grand Prairie, Texas, USA

The promotion of child joint-custody arrangements needs revisions. The endorsement of child joint-custody arrangements increased since the turn from the "doctrine of tender years" to "the best interest of the child" in family court systems, resulting in the creation of public policy across the States. Family judges award child custody based on evidence including child welfare research. However, researchers are still investigating whether child joint-custody arrangements are in "the best interest of the child. The purpose of this study is to contribute to this investigation, considering the voices of families sharing physically the child in two-households. Qualitative studies about raising children in two-households are seldom. Commonly, researchers compare child adjustment between solely custody versus joint custody. The objective of this study is to identify themes about the experiences of child physical joint-custody families related to the following research question: what are the implications of having a child physical joint-custody arrangement? I provide a qualitative meta-synthesis about the experiences of families with child physical joint-custody arrangements. This technique aims to gather the voices of individuals sharing a common experience across five qualitative studies. The five studies used a variety of different qualitative designs and provide insights from 134 participants including adult children, parents, and former spouses aged from 20 to 40 years old. They represent a diverse group of ethnicities across the United State and Canada. The grounded theory approach was used for data analysis. I identified direct quotes and themes using open coding. The overlapped quotes and themes were categorized into axial codes, providing a preliminary perspective of the phenomena. Several types of triangulation were employed to verify the results. The voices of child physical joint-custody families were categorized into the following new themes: "equal balance of parent involvement", "step back from yourself and see the bigger family picture", "in the best interest of the child", and "communication". The main outcome was

that having child physical joint-custody arrangements implicates changes in the behavior of former spouses, but promotes child welfare. Further qualitative research is needed for increased understanding.

Exporting Tropicalia: new representations in Puerto Rico's musical underground

Olivares Pesante, Enrique

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Puerto Rico is often represented as a tropical and idyllic space in the Caribbean rather than as colony struggling with their historical and ideological narratives. Still, these images and representation are real, palpable and perpetuate common ideas and impressions of a country. Images are meant to be consumed, but can they also be exported? Are they movable in the sense that they can be dispatched from their place of origin like a parcel? From Puerto Rico, to the US and perhaps to the world? Can they be symbols of a culture or mere caricatures? This presentation seeks to analyze a sample of music videos (combining image, text and music) from Puerto Rican bands (both local and abroad) and how their representation of natural landscape is placing their art within a large socio-political-cultural discourse of a colonial space. I will also focus on the implications of these works of art within an international matrix, and what does it mean when they are exporting a particular cultural representation. Though attempting to reconstruct a musical and cultural history of Puerto Rico in the 20th century, I will also attempt deviate or derail it, being attuned to the harmonies of the discourse, as well as the dissonances. Enrique Olivares is professor, scholar, session musician and songwriter. He is professor of English at both University of Turabo and the University of Puerto Rico at Bayamon. His interest is in Pre-Raphaelite art and poetry, music and cultural history of Puerto Rico and the literature of art in the 19th century. He is also the guitarist and main composer of rock band Los Manglers as well as the B.Jacques Express. He has lectured and toured extensively

Writing centers as agents in the promotion of student retention

Casillas Olivieri, Sylvia

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Writing centers not only play an important part in the development of students' writing and thinking skills, they also contribute positively to student retention. This paper will discuss the recommendations made by three important researchers in the area of student retention, namely Arthur Chickering, Vincent Tinto and Allan Seidman, and it will also examine how their findings resonate in the work being done at writing centers. Finally, the paper will present information about the student profile at Universidad del Turabo and the student retention statistics achieved by Universidad del Turabo's Reading and Writing Center in the light of its practices.

Towards Overcoming the Working Conditions of Social Work: The Relationship Between Human Rights, Professional Ethics and Transformation Strategies.

De Jesús Rosa, Iván¹; Ortiz Mojica, Luis²; Cruz Sánchez, Ana D.³; Gayol Santana, Leticia⁴; González Parés, Francisco J.⁵

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In the context of neoliberalism, the formulation and implementation of social policies presents a serious challenge for professional practice. The purpose of the study was to examine concrete strategies to improve current working conditions of professional social workers in terms of ethical practice and guarantor of human rights. Using a qualitative approach, the analysis was realized on the basis of the following categories: (a) precarious working conditions and human rights, (b) ethics in proposals

outlined, and (c) actions of the guild to improve working conditions. The analysis of these categories project a systematic violation of human rights by the State; various ethical positionings to confront the neoliberalization of social policy and a variety of alternatives to address the deprofessionalization, which responded to the respective ethical positionings of the Social Work professionals.

The meaning of the experience of exercising multiple gender roles in adult women in PR: phenomenological study

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Universidad del Turabo, Gurabo, PR y Huertas College, Caguas, PR

Today women are increasingly participating in society, this reality brought about the need for new challenges to men and women. Among women the challenges are related to the performance of various associated with gender roles as mother, wife, student, working and caring among others. According Vaus (2009) claims related to the roles of full-time parents can be a significant source of stress, particularly for women who in addition to wage labor continue to struggle in collaboration housework. In the same vein Sanchez-Castillo (2012) indicates that while the number of women who work outside the home has increased, there has been a compensatory increase in terms of the involvement of men in housework. This reality could mean that work and family situation of women could worsen to take on new responsibilities traditionally assigned to the female gender, without a counterpart to assist in household activities and the traditional role of mother in the family. The purpose of this study is to put forward the results of a qualitative descriptive study with a phenomenological approach conducting to meet how a group of women describe their experience and reality of life exerting multiple gender roles. To understand and analyze the stories telling in participants voices, the Stevick-Colaizzi-Keen model, as amended by Moustakas (1994) was used . Through the depths interview content analysis five categories and 17 sub- categories were obtained. According results the author can conclude that the study can confirmed the social subjective component of women role, with emphasis in aspects as motherhood, care of others and domestics tasks. Still, through their stories, it appears that all participants had continuously reflect on how well they were exercising the roles and resistance to cede any of its roles. Through their reflections author observed elements of negotiation is with themselves about their priorities, integrating and discarding responsibilities, evaluating and planning processes. all with the purpose of seeking a balance in their lives and in the lives of their families.

Crossing borders: Overview of Puerto Rican writers in the United States

Rodríguez Betancourt, Jennet

Universidad del Turabo, Gurabo, PR

Puerto Ricans have a long history of diaspora or relocation and even before the United States takeover of the island in 1898, its people have been migrating for different reasons. Within the context of the Puerto Rican migration to the U.S., there has been a rich and diverse literary production which has remained marginal to both the Puerto Rican and U.S. literary canon. This presentation charts the stages, writers, and works produced by Puerto Rican writers in the U.S. from the end of the nineteenth and early twentieth century to the literature which continues to be published to this day.

Busco a mi nieto: los derechos humanos en Argentina

Navedo Resto, Suheily del Mar

Universidad del Turabo, Gurabo, PR

One of the immediate consequences of the military dictatorship in Argentina was the disappearance of 30,000 people. Among these victims were the appropriation of 500 children. My approach is aimed at the violation of human rights and for those subsequent organizations were created in order to end such abuse of power. The Grandmothers of the Plaza de Mayo are examples of organizations that have

struggled to find children who were taken and delivered into the hands of others, however, they are a strong organization that has fought, is fighting and will continue.

Is younger better? Age and foreign language learning in academic settings

Medina-Callarotti, M.E.

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Within the field of applied linguistics, the role that age plays in foreign language learning has long been a topic of much controversy and disagreement. The age factor in formal foreign language learning has been an issue of intense debate for linguists and non-linguists alike. People seem to hold deep-seated beliefs about this; they often express their points of view with a great deal of emotion. Indeed, determining the optimum age for the onset of foreign language teaching in schools is not only important to applied linguists. It is an issue that involves the general public, due to its pivotal role in setting educational policy in countries around the world. To clarify the link between age of onset and success in learning a new language, results from major studies carried out in schools in various countries from 2001 to 2014 have been reviewed. The studies determine how the age when formal learning begins affects attainment of specific linguistic skills (reading, listening comprehension, speaking, writing). Different aspects are targeted: rate of learning, overall proficiency, and specific lexical, morphosyntactic and phonetic abilities. Other effects, such as attitude, motivation and learning strategies are considered. Still other studies focus on metalinguistic and metacognitive awareness. Results of a vast majority of this recent research on the effect of age on foreign language learning in school converge in the following general points: - Learners who begin later obtain better results than those who begin earlier. - These results holds true when adults and students of all ages are compared to earlier learners. - Contrary to what occurs in language development in natural settings, early learners in school contexts do not eventually catch up to and overtake late learners. The significance of these results for educational policy is complex. Even though younger children demonstrate slower acquisition, early foreign language education provides a learning period of longer duration, and this could result in higher ultimate attainment. Recognizing the advantage that later learners have could be useful in developing curricula that recognizes these age-related cognitive capacities. In a similar way, younger learners could benefit from a substantial increase in the number of contact hours, thus permitting them to benefit from their implicit ability to learn language in a more natural manner than older learners. Finally, more systematic research with longer observation periods is needed, because positive long-term effects of early foreign language education may be observed.

Luis Rafael Sánchez rompe el contrato con el Commonwealth: una lectura de No llores por nosotros, Puerto Rico

Lebrón, Luz Nereida

Universidad del Turabo, Gurabo, PR

Luis Rafael Sánchez is one of the most outstanding Puerto Rican writers. Narrator, dramaturge, essayist, columnist, and Puerto Rican University Professor; he is most well known internationally as novelist, author of the famous novel *La guaracha del Macho Camacho* published in 1976. His most important literary works are: *En cuerpo de camisa* (short stories, 1966), *Quíntuples* (theater play, 1985), *La importancia de llamarse Daniel Santos* (novel, 1986), *Devórame otra vez* (essay, 2005), *Indiscreciones de un perro gringo* (novel, 2007), *Abecé indócil* (essay, 2013). In this work we will study Sánchez book *No llores por nosotros, Puerto Rico* (1997) to determine how the author addresses the concepts of history and identity; the issue of the language; and the racial and marginal subject issues, and popular culture as well. Sánchez text will be evaluated in light of the Resistance Theory from the Palestinian theorist Edward Said. We will review how Sánchez shares with the reader his disappointment as a subordinate or marginal voice that has faced the vanishing of the Commonwealth promises.

The state of pay television in Puerto Rico: market structure and leading companies

Rosario Albert, Luis

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2016 marks 20 years since the enactment of the Federal Telecommunications Act and the Telecommunications Act of Puerto Rico, both of which defined the legal framework for telecommunications and cable television on the island. This work examines the major sale and consolidation transactions of cable TV companies between 1996 and 2016 to answer the following questions: What is the current state of pay television in Puerto Rico? What has been the role of the Puerto Rico Telecommunications Regulatory Board in the development of the pay television market? How has the market structure in cable television evolved? And what is the current ownership structure of the leading pay television companies? The research findings show the transformation of the cable television operators' original business model into telecommunications companies offering multiple services, such as pay TV, Internet access and telephone service; the introduction of new pay television systems, such as satellite television and the Internet protocol television (IPTV); a reduction in the cable television subscriber base; and the intensification of property concentration among global media and telecommunications companies present in the local pay TV market.

Writing Spaces: Spanish Exile and the Printing Culture in Puerto Rico During the First Half of the 20th Century

Cruz Sotomayor, Beatriz

Universidad del Turabo, Gurabo, PR

During the 20th Century, Spanish men and women living in exile outside of their native country, had a great impact in Puerto Rican culture. Spanish intellectuals like Federico de Onís, María Zambrano, Francisco Ayala, and Pedro Salinas, among others, were key in the shaping of ideologies of cultural, academic and political institutions in Puerto Rico. Since its foundation in 1903, the University of Puerto Rico was a fundamental place which embraced this group of intellectuals. For most of them --artists, writers, and philosophers--, publishing in the island was crucial for disseminating their points of view and their creative works. This study explores how printing turned into a vivid platform for these men and women who needed a space for writing from the exile; but, it also questions how newspapers, magazines, and books played a role in the formation of complex views and perspectives in the context of the unique political status of the island. It examines the tensions and paradoxes of a transatlantic dialogue and its role in the shaping of Puerto Rican thoughts which have survived up to this day.

The psychological experience of university students in Puerto Rico: Multiple studies on occupational health psychology

Rodríguez Montalbán, Ramón

Universidad Carlos Albizu, San Juan, PR

Academic success, learning, and professional development are the aim of any higher educational institution. However, many psychosocial factors play a significant role in the development of psychological strain, wellbeing, and academic performance. The study of psychosocial factors in universities students in Puerto Rico is scarce, and this study pretends to fill this gap. Four studies with different university students' samples will show how psychosocial factors may mediate or moderate positive and negative outcomes. On the positive side, academic self-efficacy, academic resilience, academic justice, intrinsic/extrinsic motivation, can promote positive outcomes such as academic performance and academic engagement. On the negative side, academic quantitative demands, academic boredom, and procrastination, may promote outcomes such as: academic stress, academic

burnout, intention to abandon the university and studies. Theoretical and practical implications will be discussed at the meeting.

The representation of death and the cemetery in Puerto Rican poetry at the end of the 19th century and in the first half of the 20th century

Orlando Sued, José

Universidad del Turabo, Gurabo, PR

Death has always been a recurrent theme in diverse disciplines and literary genres. When the poetic symbolism and images employed by different writers to portray the mortuary theme in their works are analyzed, we find a great number of sociological, historical and ideological referents. In this way, knowing how death has been represented in poetry not only allows us to see the mentalities of authors and their times, but it also shows us the diverse historical moments in our history. By means of the comparative analysis of the works of authors like Vicente Palés Anés, Santiago Vidarte, José De Diego and José Gautier Benítez, among others, this research paper attempts to discuss how the representation of the subject of death and the cemetery in Puerto Rican poetry allows us to follow the trace of the mentalities, ideologies, and precepts that have defined and delimited us as a society.

Knowledge and domain of the TIC'S within the students of the Turabo University

Calderón Santana, Edwin; Calderón Rivera, José A.; Rosado Sánchez, Carmen Y.

Universidad Del Turabo, Gurabo, PR

As part of the new technology and education in the 21st century, the panel Knowledge and domain of the TIC'S within the students of the Turabo University discuss the level of knowledge and domain of the Information Technology and Communication (TIC'S) within the students matriculated in their four year of study in Turabo University, campus. The purpose of this investigation is compare the results of this study with a previous research developed with students matriculated in their first year of study in the Institution. We focus in the level of improvement in the use and domain of the TIC'S shown in this study.

Use of Facebook for communication and stakeholder engagement among private higher educational institutions in Puerto Rico

Gómez, Lina M.; Borges Tavárez, Ramón W.; Pujols, Aileen; Alvarado, Yanitzary

Universidad del Este

Social media are powerful platforms for information, communication, and mobilization. Organizations, corporations, and companies are increasingly using these social platforms for marketing, public relations, and stakeholder engagement. Today, college students are one of the most frequent users of social media platforms. According to a Pew Research Internet Project study (2013), 90% of Internet users in the age range of 18-29 use social media platforms; this is a higher percentage than other adult groups range. This usage will continue growing in the next years. Therefore, higher educational institutions should be prepared and face the diverse communication challenges of today's networked society. The purpose of this research is to determine and analyze the use of social media platforms, especially Facebook, among higher educational institutions in Puerto Rico. This with the aim of improving bidirectional communication with their audiences and other elements such as engagement, relationship cultivation, mobilization, and use of supportive interactive resources. A quantitative content analysis was performed to 9 Facebook official profiles of higher institutions in Puerto Rico (from the top 400 locally owned Puerto Rican companies' list published in Caribbean Business magazine) during two months. All content generation published during these two months was analyzed and a total of 944 messages were encountered for coding and analysis. Results point out that 79% of the messages promote informational messages and only few engage in dialogues and relationship cultivation with their stakeholders. Among the very few universities that promote mobilization, most of them invite

audiences to participate in events or join causes. The most supportive interactive resources are photos. Social media can be an effective communication platform in order to develop a direct connection with students and create a sense of belonging for the institution. In this sense, universities in Puerto Rico must start engaging with their different stakeholders (especially prospective and current students) in order to overcome the different challenges in the actual educational scenario in this conversational and networked age.

Childhood Obesity: A Nursing Approach to a Global Problem

Ramírez, Juan Carlos

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Childhood overweight and obesity incidence and prevalence are reaching epidemic global proportions. Not long ago, the problem was a concern just for industrialized countries, today the condition is affecting children from all around the globe including children from poor developing countries (Campbell, Waters, O'Meara and Summerbell, 2011). The U.S. Department of Health and Human Services reported that the number of obese children has tripled since the 1980s. The Center for Disease Control and Prevention reported that 17% (12.5 million) children aged between two and 19 years old in the U.S. are obese. Globally, the World Health Organization reported that around one billion children around the world are overweight and 300 million of these children are obese. These reports indicated that 22 million children under the age of two are obese. These obesity rates are found to be high even in poor and developing countries in addition to developed countries. In North America, the United Kingdom, Eastern Europe, the Middle East, the Pacific Islands, Australia and China, childhood obesity rates have tripled during three decades. Globally, the obesity rates are reported to range from 5% in China, Japan and certain African nations, to over 75% in urban Samoa. Obesity is therefore considered to be a global epidemic that may lead to healthcare consequences such as disability and chronic conditions. In addition to the health consequences, obesity also accounts for two to seven percent of healthcare costs in developed countries. As stated by the WHO global strategy on diet, physical activity, and health is needed (2003); the condition is not exclusive for developed countries, nowadays, low and middle-income countries are facing it, especially at urban areas. According to the WHO, by the year 2007 an estimated of 22 million children under the age of 5 were diagnosed overweight in the world, from this number, more than 75% live in low and middle-income countries. The purpose of this article is to present a comprehensive approach to the current childhood overweight and obesity public health situation from a nursing perspective leading to the identification of potential sustainable solutions.

Music as a (pre)text in Puerto Rican Literature

Rodríguez-Ramírez, René

Universidad del Turabo, Gurabo, PR

Music plays a very important role in the formation of identities in several texts of the Puerto Rican literature. Music is central in the discursive production of what may be "lo puertorriqueño". This paper shows the relevance of music in the performance of the national identity; especially what literature has to say about the elucidation of that identity. This presentation starts from literature and ends with music. These cultural practices aimed, one way or another, to "stipulate" the road to be taken by the national identities as entities that are constantly changing, always restless and producing new meanings, eternally moving, altering any form of definition and standardization.

SuperXclusivo y el infoentretenimiento en la televisión terrestre en Puerto Rico

Soto, Ivette; Rosario, Luis

Universidad del Turabo, Gurabo, PR

The presentation will examine the factors for the success and cancellation of SuperXclusivo, a television program in Puerto Rico terrestrial television, after 14 years of broadcasting and being one of the leading programs in audience surveys for over twelve years. The analysis will include the role of rumour and gossip in the press, television, and the infotainment genre; the uniqueness of the program and the factors that explain the success of SuperXclusivo, as an example of infotainment; the context for the boycott that causes the cancellation of SuperXclusivo; and the concluding remarks about the infotainment genre in relation to freedom of expression, social networks and television.

El discurso sexualizado y la construcción de la identidad en la narrativa de Olga Nolla

Collazo Vázquez, Judie

Universidad del Turabo, Gurabo, PR

This research focuses in the construction of self-identity in Olga Nolla's narrative work. Like in the works of other women writers, Nolla's characters use words to exorcise the demons that keep women trapped in social conventionalisms. The goal is to show that Nolla used erotic and sexualized discourses to transgress the patriarchal discourse that limits women. This has been done examining Nolla's short stories compiled in her book *Porque nos queremos tanto* and her novels: *La segunda hija*; *El castillo de la memoria*; *El manuscrito de Miramar*; and *Rosas de papel*. Upon examination of these texts, it became clear that when female characters use an erotic language to reclaim their rights over their body and mind, they realize their true self, representative as a social critic of a historical period in which woman were subject to the authority of men.

Identidad y género en la pieza dramática "Julia" de Carmen Rivera

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The literary discourse of the Latina playwright in the United States proposes a self-affirmative, self-perceptive and self-defining paradigm which emerges through her heritage and historical circumstances. Nuyorican women playwrights present in their literary creations an expression of their own identity and of other women. Their voices share the experience of a history of colonization and neo-colonialism. In addition, they share the name "woman of color" to be excluded from the prevailing feminist discourse. The interests of the Anglo-American and European feminisms, have homogenized all women into a single concept. Feminist hegemony has built a theoretical framework within which Latina women could not find any differential aspect of the dominant discursive construct. The Nuyorican literature occurs within the of geo-social-political American space. However, we cannot erase the fact that it is also part of the Latin American history. Their literary production has a historical circumstantial reason that has contributed to its historical presence in the United States. Puerto Rican immigration begins from 1898 when Puerto Rico is occupied by the United States in the Spanish American war. At this time began a political, social and economic process that permitted a wave migration of Puerto Ricans to the United States. During the twentieth century, the economic base of the island shifted from agriculture to industry and tourism. As the economy changed radically, this allowed a massive migration of rural people to the city of San Juan and American ghettos. Through this analysis we will explore the concepts of the Nuyorican theatrical discourse with the play "Julia" by Carmen Rivera, in order to examine the identity, cultural and representative aspects of Puerto Rican women in the historical context in the United States. Through this analysis, we will focus on the female figures, their voices, experiences and theoretical concepts of feminism in the theater. The Nuyorican form its own subject in order to break the image represented by the prevailing ideology. Their experience is expressed in two symbolic orders,

the English language hegemony and Spanish as the mother tongue. Their discourse incorporates both linguistic experiences to inscribe their bilingualism. Some of their writings incorporate bilingualism, while the majority maintains the hegemonic language. Bilingualism is the linguistic expression of their reality. This like biculturalism, are authentic expressions of the Latina experience in the United States.

Case Study: A Transpersonal Approach to Psychotherapy

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Case Study: A Transpersonal Approach to Psychotherapy Francisco Millán, Psy.D., T.S. The purpose of this case study presentation is to describe to the audience a psychotherapy process implementing a Transpersonal Approach. Through the description of the therapeutic process, different techniques like guided imagery, sound healing, role playing, mindfulness exercises and dream analysis will be illustrated. The case study demonstrate how effective and powerful this approach and techniques were for uncovering and healing unresolved traumas that affected the present relationships of the participant. Once the emotions of those traumas were released the participant was able to canalize in a more productive way the emotions that arise in present situations. It also shows, the importance and the benefits of integrating the spiritual aspect in the therapeutic process and the daily life for this particular participant.

El desarrollo de la identidad transnacional de Julio Cortázar a través de la configuración espacial en los cuentos “Casa tomada”, “La autopista del sur” y “El otro cielo”

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Most of Julio Cortázar's short stories take place in Paris or Buenos Aires. This is not surprising when we consider that both cities have shaped the author's transnational identity. We intend to study how the spatial configuration in the short stories “Casa tomada”, “La autopista del Sur” and “El otro cielo” acts as an allegory of Cortázar's identity transformation process. We will consider the allegorical construction of the house in the short story “Casa tomada” as a symbol of the author's anti Peronism and eventual Eurocentrism; we will analyze the construction of an utopian society within a French highway in the short story “La autopista del sur” as a result of Cortázar's reconciliation with his Latin American identity; and finally, we will study how these allegorical constructions lead us towards a transnational view of reality through overlapped galleries located in Buenos Aires and Paris in the short story “El otro cielo”.

Construcción de la identidad femenina en la narrativa de Rosario Ferré

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Since the publication in 1976 of her first book, the collection of short stories and poems entitled Papeles de Pandora, the Puerto Rican writer Rosario Ferré has become one of the most studied author both at home and abroad. She has written books in different literary genres, including novels, poems, essays, and short stories. Many of them have been translated to several languages, including English and German. According to literary critics, Ferré's writings are characterized by a strong feminine presence. This is the reason why we will study the construction of feminine identity in Rosario Ferré's novels and short stories.

Craftfoodización: estilización y hedonismo en los nuevos consumos gastronómicos. El caso de Puerto Rico

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If Fordism meant the beginning of mass production and the promise of equality linked to consumption, post-Fordism is opening a new era where the consumer denies his status, and seeks individualized consumption patterns to achieve, in Urry's words, an "imaginative hedonism (1999) where consumption means experience. Craftfoodization represents the antithesis of the gastronomized large-scale development of the McDonalized (Ritzer, 2008) companies, emerged in the heat of post-war industrialization. As a result of what Ortiz Cuadra called the "Society of stylization, abundance and variety" (2006), a new generation of concerned chefs and catering entrepreneurs is arising to offer a handmade non-traditional cooking based on nutritional quality standards, consumption of local products and anti-standardization in customer relations and in the design of facilities.

¿Por qué los jóvenes eligen ser líderes de las organizaciones criminales?

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In order to explore the real motives that drive young people of our country to belong to different criminal organizations and become leaders of these organizations to commit crimes, this research aims to use real testimonials from people who were linked to a criminal organization and discover what role does our society play. Does our social indifference foster the perfect environment for our youth feel they have no choice but to belong to these organizations? Or rather they not see an opportunity for development in their communities, and these organizations are an alternative? Or do they feel socially pressured to compete? Or simply that this behavior is learned by imitating the wrong social models? My interest in this investigation is to go after the motivation of these young people who belong to criminal organizations and became their leaders, regardless of the risk of arriving at the prison or death. For the purpose of this research, a total of eight young male adults were interviewed using a semi-structure interview format. All participants were in a rehabilitation organization recovering from substance abuse. Among the findings of this research it can be highlighted that all participants had contact with criminal organizations from an early age. Criminal activities were part of their social environment and sometimes it was the lifestyle of their own parents. Participants were therefore justified to enter into a criminal organization and obtain a leading position within them. It is also important to highlight in the findings that they all managed large amounts of money and employed several individuals in their organizations. Some participants also mentioned continuing their criminal activities while in prison. Finally, all participants came to the realization that it was more what they lost than what they made out of being criminal leaders. Although they controlled the lives of other they ended feeling alone. It was this loneliness that led to the use of controlled substances, which made them lose their influence and money and made them end as homeless wandering the streets.

Experience with Type I crimes and their relation to the acquisition of a firearms license in Puerto Rico.

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People who choose to purchase firearms may be motivated by a variety of reasons. They range from a recreational pastime, practice sports involving firearms, obtaining a job that requires this type of license, or for safety. In this study I aim to assess if the acquisition of a license for firearms is related to personal and family safety, and to experiences or concerns with a Type I crime. For some people the acquisition of a gun license may be motivated by the need to feel safe both at home and in their daily lives. It is of interest here to check if the lack of security is due to some previous experience of the person or

someone close with a crime. A total of 64 gun licensees were surveyed at a local gun store and they provided information regarding their experiences with crime, perceptions of safety and the reasons for having a gun license and for purchasing a gun. A 27% of the 66 licensees surveyed reported to be direct victims of type I crimes and 59% of them have had family members or someone close been victims of that type of crime.

A denunciation of corruption and political favoritism in the columns of Mayra Montero

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The Cuban-American writer Mayra Montero publishes every Sunday a series of columns in the El nuevo día newspaper titled Antes que llegue el lunes. In them is a constant denunciation of governmental corruption and political favoritism. Throughout her columns we encounter her biting criticism of public servants: the governor, agency heads, legislators, mayors and all those who fail the country through their decisions and actions. When government employees make decisions that favor their clients and/or friends they enable the political favoritism existent in our island that many times comes with theft, waste, fraud, embezzlement and squandering. When these are discovered Montero does not hesitate to denounce them and demand remedial measures. In the face of the fiscal crisis that we suffer her voice strengthens on denouncing the multiple cases that are investigated at the state and federal levels, that become the scandal of the moment. With a strong voice she condemns this wrongdoing that envelopes Puerto Rico and drains public funds. In a resounding manner her tone moves within irony, sarcasm and satire. Her columns carry a necessary message, they are an invitation to seriously debate, without mutism or apathy, the rampant corruption that afflicts the country. The columns are also a call to readers, as citizens and taxpayers, to reject the impunity to which some accomplices to corruption are accustomed.

Latas de sopas Campbell: el pop art de Andy Wharhol

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En la investigación: Latas de Sopa Campbell: El Pop Art de Andy Warhol, se planteó resolver cómo el arte y métodos del artista revolucionaron esta disciplina y las comunicaciones. Se estudió sobre cómo creó un movimiento artístico innovador en los Estados Unidos y la aplicación reciente de sus técnicas. El interés surge del análisis en las veces que Warhol y su movimiento pasan desapercibidos en la historia del arte, siendo esenciales para comprender la contribución cultural de su época y el arte moderno, donde hasta hoy, hay poco cambio. Abarca temas como el consumismo y personas famosas, emprendiendo una nueva forma de crítica social interna. Para completar este trabajo, se recurren a medios electrónicos (revistas de arte, páginas culturales y museos). Los resultados coinciden con la hipótesis sobre su introducción de la crítica a través de sus obras, donde siempre han sido un medio de expresión accesible y muy eficaz.

El instinto maternal existe? Mito o verdad

Quiñones Santa, Angelisse

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The present work consists in one investigation about the existence or not of maternal instinct and how the society influences in what is the maternity. Also, the investigation includes procedures in what observes the maternal environment, in the culture, the social factors and how began the named maternal instinct in past times in the life of the women. Also, examined different types of cases about killer mothers and compared in what is a good mother and a bad mother. Even, it exposed the story about rise of the feminism in sixty decade in Latin America and in the sixty in Occidental Europe and in

the United State, where describes part of the happened in the second wave and what was that provoked that movement. The obtain data and the complete investigation concluded with a point of view reaffirmed by the investigations of professionals and suggests that each reader or person analyze and study the history of the maternity thoroughly so they can take the adequate knowledge about the theme and to have his own personal point of view, because there's no a scientific base that affirms the existence of the maternal instinct.

The Chinese Immigration in the Eastern Region of Puerto Rico in the Nineteenth and Twentieth Centuries

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With the abolition of slavery, and despite the need of labor, not all countries in America and the Caribbean adopted the system of Indentured Laborers. In Puerto Rico the project to introduce Chinese Indentured laborers was unsuccessful. Despite this, Chinese came to the island as prisoners. Why Chinese prisoners came to Puerto Rico and from where? Hundreds of Chinese prisoners arrived to Puerto Rico to work in the construction of the Carretera Central. After they completed their conviction many remained on the Island and some of them chose to reside in the Western Region. Where did they work? Did they have families? Those are some of the question answered in this presentation.

Public Hygiene in Caguas, 1878-1898

Roque Rivera, Juan E.

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During the nineteenth century, the municipality of Caguas, Puerto Rico, articulated a series of measures on public hygiene with the purpose of developing a healthy population for the productive labor. The Spanish State assumed this policy, not with altruistic goals but for the purpose of maintaining the productive value of the population. In others words, a healthy population could guarantee a good production. Through the approval of bandos and legislation regarding hygiene, water supplies, diseases, and even prostitution, the General Government and Municipalities assumed a discourse of modernization which was popular in Europe, Latin America and the United States during the nineteenth century.

Merchant Houses in San Lorenzo de Hato Grande in Nineteenth Century

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This research is a part of the panel of the Political, Societal, and Economy of the Eastern Region of Puerto Rico during the nineteenth and twentieth centuries. The merchant houses of the time turned into a source of credit for the planters of Puerto Rico. In Puerto Rican historiography, the main explanation regarding this transition has been the dominance of the merchant houses by Spanish elite of the time. This investigation explores the control and power of the merchant houses by the Catalans, and its influence in the economy of San Lorenzo, Puerto Rico at the end of the nineteenth century.

Descriptive correlational study of the influence of advertising on male college students from a private university in Puerto Rico from the ages 18 to 25 and its relationship with Vigorexia and Narcissism

Correa Henry, Pedro R.; Tania J. Córdova Vázquez; Reinaldo Veguilla Osuna; Natalia Vázquez Berríos

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The purpose of this research proposal is to analyze the influence of advertising on the image of male college students, from ages 18-25, who are enrolled on a private university in Puerto Rico. Also, the following will explore certain disorders, like vigorexia and narcissism, and how are these related to the abovementioned subject. This study will have a quantitative approach with a descriptive, correlational

and non experimental range and a cross-sectional design. The sample will be chosen according to the features that seem fitting for the investigation. The sampling will bear no probability because they will be handpicked for the researchers convenience and the participant's availability. The measurement device that will be used is Likert's scale, which will measure items like the frequent use of social networks and the tendency to upload self-portrait photographs on these platforms, the intake on social media, the assistance to a gymnasium, the concern to follow trends presented by the market and hold up an image. The results of this could be of interest to college students, mental health professionals and those who work on the communications industry, especially advertisers and Public Relations representatives.

United Porto Rico Sugar Company in the Eastern Region of Puerto Rico, 1926-193

Aleman Iglesias, Javier

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This study examines the impact caused by the investments of the United Porto Rico Sugar Company at the moment of its foundation in the Eastern Region of Puerto Rico. This company was established in 1926; then, it showed its buying power and wealth by purchasing six central mills between the municipalities of Cayey, Caguas, Juncos, Humacao and Vieques. The acquisitions by in the corporation triggered the fall of a large part of medium and small size farmers, thus monopolizing the sugar production in the region. Finally, the investigation analyzes the methods used in the territorial expansion, one of the least studied areas in the historiography of the sugar cane industry.

Descriptive, correlational and comparative study about the level of academic performance in athletes of gender male and female during the qualifying time of the sport of athletics before in the "Justas Intercolegiales" of a private University of Puerto Rico

Díaz, Windry; Rivera, Denise; Peña, Gilberto; Rolón, Lisandra; González, Keysha M.; Ortiz, Betty

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This proposal pretends to investigate if a statistically significant correlation exists between the sport of athletics and the level of academic performance of the athletes of genders male and female during the qualifying time to be able to participate in the "Justas Intercolegiales" of Puerto Rico. The study will use the mixed focus with a descriptive, correlational and comparative scope. The design will be non-experimental longitudinal with a probabilistic stratified type of sample. The criteria for the selection of the sample will be the age from 18 to 25, and that they are found in the academic year that allows them to participate in the "Justas Intercolegiales". For the obtaining of data, a measuring instrument by way of Likert Scale will be designed. This scale will consist of five levels that could fluctuate from totally agree to totally disagree. The results of the investigation could shed some light to college institutions that participate in the "Justas Intercolegiales" to design academic strategies so that the athlete student achieve a balance between his or her academic performance and the demands of the sport of athletics during the qualifying time before in the "Justas Intercolegiales".

Descriptive, correlational and comparative study of the levels of anxiety before midterm exams and a departmental exam in students in their fourth and fifth year, in the concentration of chemistry at a private university in Puerto Rico

Rodríguez Cruz, Andrea; Meléndez López, Frances; Almeda Medero, Jomarie; Roque Ramos, Julio; Fonseca Kalp, Joshua; Ortiz Alverio, Soanette

Universidad del Turabo, Gurabo, PR

This proposal pretends to investigate whether there is a significant statistical difference exists between the levels of anxiety produced by a partial and a departmental college level exam. It will be aimed specifically towards college students within their 4th and 5th year of their bachelor's in Chemistry major

at a private university in Puerto Rico. This research is meant to be of a descriptive, correlative and comparative nature with a non-experimental longitudinal trend design. The sample shall consist of one hundred (100) students attending their 4th and 5th academic years studying Chemistry major at a private Puerto Rican university. The Anxiety Inventory State Trait (AIST) test, designed with 40 items to assess anxiety as a state or trait, has been chosen as the main tool to measure the student's anxiety. The results of this investigation could be of interest to universities of Puerto Rico since it could hopefully generate methods and/or strategies to provide their students with the ability to reduce their levels of anxiety before an exam.

The Role of the Nurse Practitioner in the Childhood Overweight and Obesity Situation

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SUAGM-UT-South Florida, Florida, USA

Nutrition education and childhood overweight and obesity are interrelated terms. As part of the MSN nursing research course, we have propose the question: Is nutrition education effective in reducing weight in overweight and obese children? The proposed poster will bring a comprehensive approach on a public health issue from the perspective of the nurse practitioner students at the Universidad del Turabo South Florida Campus. In addition, it will show the role of the nursing professional and its impact on the management of a situation that is reaching epidemic levels and how the active participation form MSN students could bring positive outcomes fro local communities.

MMPI-2 Profiles of Puertorrican patients admitted to a Epilepsy Monitoring Unit with Epilepsy or Non Epileptic Seizures

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An approximate of 10% to 26% of patients admitted to monitoring units have a diagnosis of non-epileptic seizures (NES). Thus, the importance of a differential diagnosis is crucial for the effective management of epilepsy and NES. Recent literature on epilepsy has suggested that the MMPI-2 is an appropriate instrument to differentiate between epilepsy and NES. Most of this literature has focused on documenting these differences among white samples in the United States, neglecting minorities such as Hispanics. The objectives of this study were to: Identify the differences among epileptic and NES sample of adult Puerto Rican patients using the MMPI-2. Document the sensitivity and specificity rates of the MMPI-2 among this sample. A total of 57 records were evaluated. An independent group T-test was performed to compare the means of the T-scores of the MMPI-2. A sensitivity and specificity analysis was conducted following Wilkus et al. (1984) and Cragar et al. (2003) criteria's to differentiate patients diagnosed with epilepsy and NES. From the sample, 36 patients were classified with NES and patients showed significant elevations on scale 1 ($t(55) = -2.81, p < .05$) and scale 3 ($t(55) = -2.21, p < .05$) of the MMPI-2 when compared to epilepsy patients but not on scale 2 ($t(55) = -0.10, p > .05$). Rule sets showed a sensitivity of 58.33% and 61.10% for the Wilkus et al (1984), and specificity of 66.67% and 71.40% with the Cragar et al (2003). The results partially supports literature that points to elevations in the Conversion V pattern. However, these findings diverge from literature as they suggest that there are no statistically differences between groups in scale 2. These results could be explained by recent literature that suggests a higher expression of emotions among the Hispanic populations. Health professionals must be careful when using the MMPI-2 as a diagnostic tool with Hispanic patients, and should consider integrating other diagnostic tools.

Atypical Sexual Behaviors Among the General Population in Puerto Rico

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The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013) defines paraphilias as sexual disorders in which persons have recurrent, intense sexually arousing thoughts, fantasies, urges, or behaviors involving atypical activities. Although literature has documented how these atypical behaviors are prevalent across the globe, research has neglected to address how they manifest among the different Latino/a groups. This is an important aspect as Latinos/as are not a homogeneous group, thus manifestations of sexual behaviors might differ among them. Therefore, attending sexuality issues, specifically atypical sexual behaviors, cannot be generalized among such culture and sub-groups. This diversity must be identified in order to provide adequate psychological counseling services and develop appropriate interventions. Thus, the objectives of this study are: (1) to examine the presence of atypical sexual behaviors among a Latino group, specifically in an adult sample of Puerto Ricans; (2) to examine the associations between these atypical sexual behaviors and their physical and mental health; (3) to identify socio-demographic variables related to each specific behavior. Following a non-probabilistic sampling procedure, we are currently collecting the final quantitative data using a survey technique via Survey Monkey technology. A total of 800 participants are expected to complete the survey by the end of December 2014. Descriptive statistics will be conducted in order to comply with the study's objective 1. Bivariate logistic regression will be used to comply with the study's objectives 2 and 3. The results of this study will provide a general picture of specific atypical sexual behaviors among Puerto Ricans. It will also yield unique insight regarding the associations between these sexual behaviors and their physical and mental health. This data will be directly aligned with this year Division's theme as it will enrich culturally sensitive values and foster diversity competencies around the globe.

Join Regeneration with Stem Cells

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The joint regeneration using stem cells is an alternative to pharmacologic and non-pharmacologic treatments that has been used since the past century in humans. This procedure becomes a popular research matter since still represents a field with many questions and unknown answers. Researchers pursuit to collect evidence of benefits obtained with the use of these pluripotent cells in the recovery of patients suffering from joint disorders or degenerative damage and to use this evidence to identify in which of the articular conditions this treatment represent a significant benefit in contrast to others that have been used for a long time, as the total joint replacement or repeated intra-articular injections of steroids. The achievement of fully and faster joint regeneration has remarkable significance nowadays considering the high prevalence of this condition in the population, leading to elevated index of disability. Consequently, this article mentions the main risk factors for joint damage and the types of joint disorders, with the benefits reported using stem Cell transplants as main treatment.

Risk Factors for Autism Related Disorders in Hispanic Population Living in the USA

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Comprehension of the prevalence of autism related disorders and particular phenotypes including language expression, behavioral deficits, and comorbid mental retardation based on ethnicity and race has dominated the field of medical research in the U.S in the past few decades (Surén, 2013). The mere fact that over 20% of children aged below six years in the country have immigrant parents is adequate to prompt considerations regarding the influences of ethnicity and nativity in the etiology of Autism

Spectrum Disorders (Becerra et.al, 2014). Hence, over time, related epidemiological studies have adopted a tradition of utilizing migration studies to analyze how genetic factors and environment contribute to widespread disease risks in specific categories of a population. Based on the evidence provided in some of the existing peer-reviewed literature resources, this paper will investigate the risk factors for ASD and the associated phenotypes among the Hispanic population to ascertain the uniqueness attributed to the ethnic and nativity influences.