

RUTGERS

Community Leadership Center
Camden



Anchor Institutions Advancing Local and Global Sustainable Community Development

2017-2018 Conference Proceedings
Rutgers University–Camden

Author Biography

Gregory M. Anderson, Ph.D.

Dean, College of Education, Temple University

Dr. Gregory M. Anderson is a sociologist whose scholarly interests include socio-economic and racial and ethnic inequality, access to higher education, and social change and development. Dr. Anderson is on numerous national and regional boards including the Deans for Impact and the Philadelphia Education Fund and is committed to improving the quality of education for all students but with a special focus on children of color from low-income and immigrant backgrounds

Gloria Bonilla-Santiago, Ph.D.

Director of the Community Leadership Center, Rutgers Board of Governors Distinguished Service Professor, Board Chair of the LEAP Academy University Charter School

Dr. Santiago is a Board of Governors Distinguished Service Professor, Graduate Department of Public Policy and Administration at Rutgers, The State University of New Jersey. She also directs the Community Leadership Center and is the overseer and Board Chair of the LEAP Academy University Charter School. Throughout her academic career, she has established a track record in coordinating large scale programs and private and public ventures that bring together external and internal stakeholders from a range of organizations, including government, business, non-profits and philanthropic sectors at the local, national and international levels. Dr. Bonilla-Santiago is well known expert in Education policy and Community development. She is the author of numerous books and articles and has an international reputation for up-scaling best practices on Higher education and innovative ideas.

Heidie Calero JD

President, H. Calero Consulting Group, Inc.

Heidie Calero is an economist and lawyer, is currently President of H. Calero Consulting Group, Inc., a consulting firm in the areas of economics, planning, and finance. She was Chairperson, President, and Partner of a private consulting firm in the area of economics. As Executive Vice President, she was in charge of the Corporate and Municipal Finance Department of Drexel Burnham Lambert, Puerto Rico, Inc. She established the office of the top investment banking firm of Salomon Brothers, Inc. in Puerto Rico. As Head of the Economics Research Department for Citibank in Puerto Rico, she did extensive research on the impact of US Code Section 936 on the Island. She also taught macroeconomics at the University of Puerto Rico and Managerial Economics - Master's Degree Level – at the Central University in PR. She edited and published the book: Inside the Puerto Rico Economy, 1998- 2007. She completed her post graduate studies in economics at the University of York in England and later became a lawyer and was admitted to the Puerto Rico Bar Association. Throughout her career, she has received several distinctions and awards.

Nancy Cantor, Ph.D.

Chancellor, Rutgers-Newark

Dr. Nancy Cantor is Chancellor of Rutgers University–Newark, a diverse, urban, public research university. A distinguished leader in higher education, she is recognized nationally and internationally as an advocate for re-emphasizing the public mission of colleges and universities, both public and private, viewing them not as traditional “ivory towers,” but as anchor institutions that collaborate with partners from all sectors of the economy to fulfill higher education’s promise as an engine of discovery, innovation, and social mobility. Having led a highly inclusive and democratic strategic visioning process at Rutgers University–Newark in her inaugural year, she is now leading implementation of the institution’s first strategic plan, which is designed to leverage the university’s many strengths, particularly its exceptional diversity, tradition of high-impact research, and role as an anchor institution in Greater Newark.

María del Carmen Zabala, Ph.D.

Professor and Researcher Faculty of Latin American Social Sciences (FLACSO) University of Havana

Dr. María del Carmen Zabala researches social development from an interdisciplinary perspective, with an emphasis on the themes of social inequality, poverty, equitable politics, family and gender. She recently won a prestigious award from the National Academy of Sciences of Cuba on an investigation on economic efficiencies and social equity. She received her PhD in Psychological Sciences from the University of Havana.

Matthew Closter MPA, MS,

Senior Research Associate, Community Leadership Center and PhD Candidate Public Affairs, Rutgers University

Matthew currently serves as a Research Associate for the Rutgers-Camden Community Leadership Center, where he organizes a public lecture series on issues of education and community development, writes grant proposals, maintains the Alfredo Santiago Endowed Scholarship Fund for students from LEAP Academy University Charter School to attend Rutgers University, and produces the annual Alfredo Santiago Endowed Scholarship Gala. Matthew has extensive experience in community development and educational exchange programs, having worked for local, national, and international organizations, including the City of Philadelphia Mural Arts Program, Big Brothers Big Sisters of America, AFS Intercultural Programs, the Institute of International Education, and Amigos de las Americas. Matthew has a B.A. in Anthropology and Sociology and a Minor in Spanish from Brandeis University and a Master's in Public Administration from the University of Pennsylvania. He has also been published in Public Library Quarterly.

Cristina Diaz López, Ph.D.

Distinguished Professor and Consultant Department of Analytical Chemistry, University of Havana

Dr. Cristina Diaz López is a renowned scholar in the field of Analytical Chemistry. She has recently studied the role of the university in the creation of an environmental culture for sustainable development. Her other research interests include the development of analytical procedures for the preconcentration and determination of heavy metals in waters, sediments and organisms; high blood tension in Cuban's pregnant women; and the assessment of the pollution and integrated management in coastal zones in Havana. She has a PhD in Chemistry Sciences from the University of Havana.

Wanda Garcia, MSW,

Associate Director, Community Leadership Center, PhD Candidate Public Affairs, Rutgers University

Wanda Garcia is Associate Director of the Community Leadership Center at Rutgers University-Camden, she oversees the Rutgers/LEAP Centers of Excellence and serves as the Board Liaison for the LEAP Academy University Charter School. Ms. Garcia is originally from Puerto Rico and has Master's degree in social work with a concentration in administration and policy in 1993. She is currently a doctoral student in the Rutgers Public Affairs Program. Ms. Garcia has served in the Board of a number of community and professional organizations, including: Founding member of Camden County Hispanic Affairs Commission and the ASPIRA of NJ Board of Directors. She is also a member of the Board of Directors of the NJ Public Charter Schools Association, a membership organization providing advocacy and support to charter schools in the State of New Jersey.

Ira Harkavy, Ph.D.

Associate Vice President and Director, Netter Center for Community Partnerships, University of Pennsylvania

Dr. Ira Harkavy, is Associate Vice President and founding Director of the Barbara and Edward Netter Center for Community Partnerships at the University of Pennsylvania. As Director of the Netter Center since 1992, Dr. Harkavy has helped to develop academically based community service courses and participatory action research projects that involve creating university-community partnerships and university-assisted community schools in Penn's local community of West Philadelphia. Dr. Harkavy has written and lectured widely on the history and current practice of urban university-community-school partnerships and strategies for integrating the university missions of research, teaching, learning, and service.

Reynaldo Jiménez Guethón, Ph.D.

Director, Faculty of Latin American Social Sciences (FLACSO), University of Havana

Dr. Reynaldo Jiménez Guethón specializes in the study of the transformation and development of the cooperative culture in rural and agricultural regions of Cuba. He has conducted research and been invited to serve on leadership committees throughout the world in Guatemala, Chile, Canada, the United States, Costa Rica, Turkey, Honduras, Ecuador, Mexico, Italy, and Brazil. Dr. Jiménez Guethón received his PhD in the Sociology of Education from the University of Havana.

Marta Lourdes Baguer, Ph.D.

Distinguished Professor, President of the Science Faculty Council, Coordinator of the National Program in Basic Science of MES, University of Havana

Dr. Marta Lourdes Baguer specializes in numerical linear algebra and its applications; parallel computation; numerical mathematics; and image processing. She currently leads the National Research Program for Basic Sciences in Cuba and has been a member of the Organizing Committee between Cuba and Mexico on the Numeric Methods and Optimization. Dr. Lourdes Baguer received her PhD in Numerical Mathematics from Humboldt University in Germany.

Janet Rojas Martínez, Ph.D.

Faculty of Latin American Social Sciences (FLACSO) of the University of La Habana in Havana, Cuba.

Dr. Rojas- Martinez has many specialties in tele-detection and special techniques, international and social relations development, public policy analysis, youth programs development, economic and structural development of Cuba and local development. In her experience as an academic, she has conducted many classes and investigations with topics related to: problem and conflict identification techniques, human geography, public health and Cuban society. She has received support from various organizations for her work, including territorial and social cohesion in Cuba for the CESBH and CITMA, early childhood and youth studies projects for FLACSO-Cuba, CEPDE-ONEI and UNICEF, among many others.

Dr. Sofía Magdalena Porro Mendoza

Professor and Researcher Faculty of Latin American Social Sciences (FLACSO) University of Havana

Dr. Mendoza's academic background is based on an early degree in education, courses on foreign languages such as Russian and English, a Master's degree in social and international relations development and a Doctorate in Sociological Education from the University of La Habana in Havana, Cuba. Dr. Porro-Mendoza's research and publications are related to fields in social and early childhood development, the Cuban families' realities and perspectives connected to social policies and the social relation to science and technology. Her participation in a diversity of projects include coordinating, collaborating and project designing for gender and youth studies, cooperatives of agriculture, economic, and social and community development initiatives, among many others

Dennis R. Román Roa

Director of the Center for Puerto Rico

Dennis R. Román Roa has over 25 years of experience in the commercial and manufacturing industry. Throughout his career he has distinguished himself by his executions in topics of organizational transformation, strategic planning, productivity, sales and marketing. Román Roa has a Juris Doctor degree and a Master's degree in Business Administration, as well as a bachelor's degree in Chemical Engineering. His extensive professional experience includes the following positions in the renowned company AVON: General Manager of the Caribbean, Executive Director of Sales of the Northeastern United States. He has also served as professor of Engineering and Management for the University of Puerto Rico, the Pontifical Catholic University of Puerto Rico and the Inter-American University in San Germán.

Kiersten Westley-Henson, MA

Research Associate, Community Leadership Center, PhD Student Public Affairs, Rutgers University

Kiersten received her MA in Psychology from Rutgers University and is currently is enrolled in the Public Affairs and Community Development PhD program at Rutgers University. Kiersten's current research focuses on food security, tourism, national/international development and environmental sustainability. Kiersten has presented at the Annual Association of Psychological Science, IAGG World Congress of Gerontology and Geriatrics and Rutgers Camden Graduate CURCA event. Kiersten is currently working with Dr. Gloria Bonilla-Santiago on research pertaining to collaborations with Cuba in community development. She has served on the board of the Rutgers Camden Student Health Services and the Graduate Student Advisory Board, and is a recipient of the Smithsonian Earth Optimism Summit Scholarship, Graduate Merit Fellowship, Rutgers University, Camden, and the David & Dorothy Cooper Scholarship.

Table of Contents

Conference Proceedings, Puerto Rico & Cuba

Introduction	1
Closter, Matthew, Senior Research Associate at the Community Leadership Center, graduate candidate for Ph.D. in the Rutgers-Camden Public Affairs and Community Development program	
<i>“Weathering the Storm – Challenges for PR’s Higher Education System”</i>	6
Bonilla-Santiago, Gloria, Ph.D., Calero, Heidie, JD, with Garcia, Wanda, graduate candidate for Ph.D. program in the Rutgers Camden Public Affairs and Community Development program, Closter, Matthew, graduate candidate for Ph.D. in the Rutgers- Camden Public Affairs and Community Development program, & Westley-Henson, Kiersten, graduate student in the Ph.D. program in the Public Affairs and Community Development program	
<i>“Higher Education for Puerto Rico’s Future Recovery and Sustainability”</i>	21
Bonilla-Santiago, Gloria, Ph.D., Calero, Heidie, JD, with Garcia, Wanda, graduate candidate for Ph.D. program in the Rutgers Camden Public Affairs and Community Development program, Closter, Matthew, graduate candidate for Ph.D. in the Rutgers- Camden Public Affairs and Community Development program, & Westley-Henson, Kiersten, graduate student in the Ph.D. program in the Public Affairs and Community Development program	
<i>“A Partnership for the Empowerment of Future Leaders Generations in the Re-building of Communities and Neighborhoods”</i>	32
Román Roa, Dennis, R.	
<i>“Community development and social equity in Cuba: achievements and future prospects”</i>	35
del Carmen Zabala Arguelles, María, Ph.D.	
<i>“Cooperatives and local development in Cuba: Current Challenges”</i>	40
Jiménez Guethón, Reynaldo, Ph.D.	
<i>“Betting on the future. Some experiences of community work with children from the University of Havana, Cuba.”</i>	51
Rojas Martinez, Janet, Ph.D.	
<i>“The social situation of Cuban children and adolescent”</i>	62
Magdalena Porro Mendoza, Sofia, PhD.	
<i>“Role of Universities in the Creation of an Environmental Culture for Sustainable Development: Experiences of the University of Havana, Cuba.”</i>	72
Díaz López, Cristina, Ph.D.,	
<i>“Non-negative matrix factorizations: Ideas and applications”</i>	78
Lourdes Baguer Díaz-Romañach, Marta, Ph.D.,	
<u>Symposium Education Series</u>	
<i>“Anchor Institution-Community Engagement in Newark: Striving Together”</i>	89
Cantor, Nancy, Ph.D.,	
<i>“University-Community Partnerships in Pursuit of Social Justice: An Anchor Institutions Approach to Advancing Teaching and Research and Improving the Quality of Life”</i>	96
Harkavy, Ira, Ph.D. and Hodges, Rita A., Ph.D.,	
<i>“Leveraging Opportunity: How a College and a University Can Engage in Community Development as a Social Justice Mission”</i>	105
Anderson, Gregory M., Ph.D.	

Anchor Institutions Advancing Local and Global Sustainable Community Development Through Teaching, Scholarship, and Research

Matthew Closter, MPS, MS

Universities, as anchor institutions, have a moral and just responsibility to fulfill social justice missions to improve the educational and economic wellbeing of their communities (Bonilla-Santiago, 2014). They harness incredible human, social, intellectual, and physical capital (Flora, Flora and Fey, 2004) that can be leveraged to empower neighborhoods and residents to change educational, environmental, and economic conditions. Universities have traditionally developed partnerships with businesses, schools, and nonprofit organizations to produce an ecosystem of collaborative learning and engagement, but their role has shifted to engage in the fabric of the community as agents of change.

The Rutgers –Camden campus has been the leading partner with the LEAP Academy University School as the only educational pipeline from cradle to college in the country. As an institution of higher learning, we are preparing students from early ages through the K-16 system to be college and career ready for a learning and workforce environment that requires college degrees. Our campus has embraced a model of civic engagement and experiential learning for college students to volunteer, intern, and assist in community programs to get exposure to life beyond the college boundaries and to study and reflect on their impact.

The purpose of this monograph and compilation of symposia proceedings is to disseminate original research papers of how faculty and entrepreneurial university leaders go beyond civic engagement and experiential

learning to change the social conditions around them and fully empower communities to excel and succeed in their educational and economic paths. The Rutgers-Camden Community Leadership Center (CLC), led by Rutgers Board of Governors Distinguished Service Professor Gloria Bonilla-Santiago, has been a leader in the movement to instill a community development framework within universities to take action against the status quo in education that leaves so many children and families behind, particularly in Camden, New Jersey.

It convened two conferences and a symposium from 2017-2018 to share knowledge from local initiatives in the Philadelphia/New Jersey region and from Puerto Rico and Cuba, where it has been fostering a major collaboration on sustainable community development. The following proceedings are papers presented by symposia participants on the collective responsibility of universities and communities to embrace a social justice mission and work with communities to build solidarity and shared meaning. The consensus is that universities have not traditionally been an ally of communities and have a long way to go to build trust and avenues for college resources and access. Rutgers-Camden takes much pride through the work of the CLC to highlight our pipeline model for children and families as we improve the educational and economic outcomes of marginalized populations in the City of Camden. The CLC has an accomplished history of developing sustainable university partnerships with the community through joint projects and initiatives to steer the educational landscape

towards a more balanced and just system. The CLC's mission is to "foster understanding and acceptance of new organizational environments and strategies for building bridges and partnerships among urban communities, academia, and organizations for dealing with race relations and urban development." Through social action research, leadership development, training and community partnerships, the Center provides a forum for the analysis, discussion, and assessment of policy issues while developing new knowledge regarding strategic approaches to meet the changing needs of urban communities.

The CLC applies four main drivers to its philosophy to guide its community development outcomes: (1) Birth-16 Pipeline of Educational Investments and Innovation, (2) Academic Entrepreneurship and Applied/Experiential Learning, (3) Applied Research and Dissemination, and (4) Leadership and Community Development. These four pillars work in tandem to ensure that the community development efforts are aligned with the university's mission of teaching and research. Since its inception, the Center has overseen local and global collaborations to share and adapt a model of universities anchoring community development strategies to empower communities through education and economic development initiatives. The Center's first major venture was to develop a comprehensive birth to college pipeline where students and families could attend an early learning program, proceed through a K-12 school district, and obtain college degrees, all along an educational corridor in one downtown location. The creation of the Early Learning Research Academy (ELRA) and LEAP Academy University School (LEAP stands for Leadership, Education, and Partnership) has accelerated the educational pipeline concept and is the only

known model of a pipeline under the auspices of one governing system. LEAP's Board of Trustees is comprised of senior administrators from Rutgers University, Rowan University, Stockton University, and Camden County College, amongst parents, business leaders, and alumni, so that the universities can connect directly with the students and families as a bridge for their next steps in higher education.

The Rutgers/LEAP Enterprise has a record of accomplishment of 100% high school graduation and college placement since the inaugural graduating class of 2005, including student acceptances and completion at esteemed universities Brown, Princeton, the University of Pennsylvania, Howard, Jefferson, Swarthmore, Temple, Rutgers, and Rowan. Students have graduated college and established careers in law, education, engineering, medicine, nursing, finance, business, and management due to LEAP has specialized STEM curriculum and academies that focus on these prominent industries. The CLC's groundbreaking Early College program is in its first year of placing the entire senior class in college level courses at Rutgers and Rowan to prepare them for the rigors of college and to obtain actual college credits. The CLC facilitates university and faculty placements amongst Centers of Excellence throughout LEAP, including ELRA, the Center for College Access, the Center for Health and Wellness, the STEM Fabrication Lab, and the Parent Engagement Center.

These Centers serve as a way to apply academic research to build practical solutions to community-based problems, especially around the degradation of environmental conditions in Camden and the lack of social services and programs for individual family and child support. The school serves as a vehicle for

community development by integrating these comprehensive and holistic services into the daily operations so that students and families can access what they need in one geographic location. Furthermore, the Rutgers/LEAP Enterprise's growth along Cooper Street has increased the vitality of the corridor through the construction of new buildings and acquisition of historic buildings. The physical transformation, and property value increases, is implicative of the community development process that richly defines the role universities can attain in educational and economic development. Dr. Santiago has used the Rutgers/LEAP Enterprise as a lab and zone of practice to engage Rutgers students and faculty apply theories of community development and best practices in the field, and to compile lessons learned to share with other stakeholders and community partners. The collaborations have extended beyond Camden's borders to embrace knowledge and partnership in other countries, particularly Cuba, Paraguay, and Puerto Rico (even though Puerto Rico is part of the United States). Dr. Santiago has nurtured these partnerships to build bridges and networks between Rutgers and other institutions of higher learning to foster student and faculty exchanges for advancing community development projects anchored by universities. Since the early 2000s, Dr. Santiago has formalized collaborations in Puerto Rico, Paraguay, and Cuba between Rutgers University, the University of Havana, San Geronimo College, UNA University, the Center for Puerto Rico and the University of Medical Sciences of Havana. The purpose of the collaborations is to engage scholars, practitioners, and artists in joint research projects and shared dialogue around creative measures for transforming and beautifying community through social and place based initiatives.

Dr. Santiago, with support from the university presidents, renewed a Memorandum of Understanding (MoU) with the University of Havana in October 2016, during the first annual conference on the Rutgers-Cuba collaboration, to expand research opportunities through joint courses and projects, academic exchanges through student and faculty residences and study trips, and conference presentations in the U.S. and Cuba. The focus of the collaboration centers on five major themes that Rutgers and the universities in Havana share: (1) Community Development, (2) STEM Fields, including Environmental and Computational Science, (3) Population Health, (4) Arts and Humanities, and (5) Law and the Economy. The papers compiled in this monograph of proceedings stem from the second annual conference of the Rutgers-Cuba Collaboration in November 2017, the theme of which was "***Future Directions for a New Cuba: Building Sustainable Partnerships.***"

The conference solidified specific collaborative ventures, including comparative studies of community development in Cuba and Camden, the public participatory process of designing the Master Plan of Havana, STEM research in using biomedical products to advance community health, and community nursing models for sustaining healthy neighborhoods. Dr. Santiago has forged other significant partnerships with renowned artists Jose Rodriguez Fuster, Santiago Hermes, and Lester Campa to host students, faculty, and workshops around the transformative power of art to beautify community with symbols of shared meaning and identity. The Rutgers-Cuba collaboration has proven to be a positive endeavor uniting civil society as a means to break down any political barriers.

Dr. Santiago has also extended partnerships and best practices from the Community Leadership Center to Paraguay and the National University of Asunción (UNA). She received a Fulbright Fellowship as a Specialist to focus on developing and facilitating a Professional Development Institute on Leadership, Resource Development, and Community Engagement for a selected group of faculty, administrators and stakeholders from the university around the theme of The Engaged University with Community. Through this effort, the UNA is exploring how to scale best practices from the LEAP Enterprise model as a linchpin for developing a university partnership that can lead to a school improvement plan for Paraguay. The San Francisco project was identified as the focal point for the collaboration with the university. This project encompasses the development of one of the poorest communities in Asunción with a comprehensive plan that integrates housing, economic development and education. Dr. Santiago will facilitate the education elements along with a team of university and local stakeholders. The work in Paraguay also resulted in an academic MOU between Rutgers-Camden and the UNA for an expanded collaboration around other academic programs.

Similarly, the CLC has been invested in the academic, economic, and social progress of residents and communities in Puerto Rico. It is a partner with the University of Puerto Rico and the Center for Puerto Rico to conduct research projects and to oversee a Rutgers Master's Program in Public Policy and Administration with a specialization in Community Development. The partnership reflects a long-term interest in empowering students and collaborating with faculty to build

knowledge and skills in community development to impact the growth and sustainability of the educational and workforce sectors. The devastation from Hurricane Maria in September 2017 has exacerbated the fragile infrastructure of Puerto Rico following the economic recession, bankruptcy, and accelerated population loss within the past decade. The CLC is committed to working with its partners in Puerto Rico to devise innovative solutions to revive the educational workforce, particularly through public symposia, joint research projects, and publications. The CLC has a call to action to unite researchers, policymakers, and members of the public to rebuild Puerto Rico and chart its path for a better future. We have included research papers from this presentation first in this monograph from various scholars, economics and Puerto Rico practitioners, including excerpts written from CLC researchers from economist Heidie Calero's new book ***How Hurricane Maria Forges Puerto Rico's Economic Future***. The second set of papers are compiled from two conferences that Cuban scholars participated in at Rutgers-Camden that the CLC facilitated in the invitations and presentations. Dr. Sofia Magdalena Porro Mendoza and Janet Rojas Martinez, of the University of Havana Faculty of Latin American Social Sciences (FLACSO), joined faculty at the June 2017 international conference of the Society for the History of Children and Youth, where they presented on the university engagement of children and adolescents. Their papers reflect the intentional outreach of universities towards children and youth to build a secure foundation for their educational and social development. Then in November 2017, the CLC hosted a major international conference on "Future Directors for a New Cuba: Building Sustainable Partnerships,"

where Cuban scholars presented their research in community development, STEM fields, arts and humanities, and law and engaged in roundtable conversations with Rutgers faculty to develop collaborative research projects.

The following papers from scholars at the University of Havana document how the community development framework and agenda is reinforced through university scholarship and practice. Dr. María del Carmen Zavala Arguelles, Professor of the Faculty of Latin American Social Sciences (FLACSO), presents the experiences and perspectives of how Cuba has fostered community development and promotes social equity at the local/community level. Dr. Reynaldo Jiménez Guethón, also of FLACSO, discusses the growth and trajectory of agricultural and non-agricultural cooperatives that empower workers in the decision-making processes. Dr. Cristina Diaz López, Distinguished Professor in Analytical Chemistry, shares her research in how universities build an environmental culture of sustainable development to protect natural resources and use them for research and development of life-sustaining products and processes.

Finally, Dr. Marta Lourdes Baguer, Professor of Mathematics and Computer Science applies nonnegative matrix factorizations as computational analytical tools to detect and treat breast cancer, symbolizing the active role that universities contribute to STEM and medical research to directly impact life-saving procedures. The final set of papers are from leading scholars from the Philadelphia/New Jersey region who presented at the CLC's Spring 2017 symposium on "Integrating Research, Policy, and Practice: Reimagining the University/City Connection." Rutgers-Newark Chancellor Nancy Cantor promotes universities

to build an "architecture of inclusion" to harness entrepreneurs, artists, and learning networks within their spheres of influence. Dr. Ira Harkavy and Rita Hodges, Director and Assistant Director, respectively, of the Netter Center for Community Partnerships at the University of Pennsylvania, call for an integrated learning approach where universities engrain experiential learning into its curriculum as a way to build a stronger democratic and civic partnership with communities. Dr. Gregory Anderson, Dean of the School of Education at Temple University, challenges the traditional approach of community engagement of universities and encourages a more active role for universities to foster the development of early learning centers and K-12 programs so students and families in the university neighborhood receive the best quality educational services.

These papers reflect the burgeoning conversations of universities actively questioning their impact and effectiveness in building and empowering the communities around them. They demonstrate that universities, as anchor institutions, can foster a social justice mission to improve the educational and economic conditions of children and families throughout their life cycle. They have a renewed mission to support entrepreneurial faculty, leaders, and students, who embed themselves in the community building process and ensure that resources are directed to better the world around them.■

REFERENCES

- Bonilla-Santiago, G. (2014). *The miracle on Cooper Street*. Archway Publishing, 2014.
- Flora, C. and Jan Flora with Susan Fey (2004). *Rural communities: Legacy and change*. 2nd ed. Boulder, CO: Westview Press

Weathering the Storm – Challenges for PR’s Higher Education System

Gloria Bonilla-Santiago, Ph.D., Heidie Calero, JD, Wanda Garcia, MSW, Matthew Closter MPA, MS, & Kiersten Westley-Henson, MA

Natural disasters, such as hurricanes, economic disasters, bankruptcy, unmanageable government debt, and economic stagnation, present the opportunity for institutions of higher learning to assess their role as anchors of their communities (Crespo, Hlouskova & Obersteiner, 2008; Skidmore & Toya, 2002). Unfortunately, many of these institutions of higher learning are not prepared and aligned to deal with the devastation caused by widespread damage to flooded buildings, the financial impact caused by loss of tuition income, the significant disruptions on the lives of university students, faculty, and staff, outward migration, and the dysfunction of the daily business of academia.

As one of the most diverse and accessible systems in the world, Higher Education performs an indispensable duty in the formation of future citizens, leaders, thinkers, and entrepreneurs; and plays a transformative role in community and economic development (Abel & Deitz, 2012).

That was precisely the reason why then poor Government of Puerto Rico established the University of Puerto Rico (state university) in 1903. After 114 years, hurricane Maria reminds us that the higher learning sector in Puerto Rico must redefine its strategies and vision and reinvent itself to survive and to contribute to the future of the Island (Matos, 2017). How does Higher Education respond to the challenges resulting from an overwhelmingly massive Category Five hurricane (Matos, 2017).

Overview of PR's higher education	
Category	Indicator
Enrollment Private v. Public	Public: 132,124 students Private: 160,109 students
Full-Time v. Part-Time	Full-Time: 81% Part-time: 19%
Degree Completion	Graduate: 19,746 Undergraduate: 30,400
Degree Completion	50,146 students completed degrees
Top Academic Areas based on Degree Completion	Health Professions Administration Culinary Arts and Cosmetology Education
Number of faculty	Public: 5,697 Private: 12,226

Source: Puerto Rico Council of Education, 2017

In 2017, Hurricane Maria devastated Puerto Rico and shattered an already struggling economy and the Island’s higher education system (Meléndez & Hinojosa, 2017; Bonilla-Santiago, 2017). Hurricane Maria killed more than 90 people and caused upwards of \$100 Billion in damages in Puerto Rico. It also caused the loss of thousands of crops as well as forced thousands to leave the island, millions to lose their homes and many communities to be destroyed (Ferre, Sadurni, Alvarez, & Robles, 2017).

While the loss and devastation of a natural disaster is immediately unbearable with its tremendous attack on human life and natural devastation, disasters offer an opportunity for reinvention, development and innovation (Matos, 2017).

After Hurricane Maria devastated the Island of Puerto Rico in September 2017, the discourse about the impact on Puerto Rico categorized the aftermath as an economic

disaster with serious implications for life and prosperity. Disasters have the peculiarity of exposing the vulnerabilities of a country, especially when the devastation causes loss of life, housing, energy and a collapse of infrastructure (Cowen, 2014). After five months since Hurricane Maria ravished the Island, Puerto Rico is dealing with a reality that has resurfaced the profound issues of poverty, inequality and outdated infrastructure (Melendez-Olivera, 2017).

However, devastation also brings a political environment that, for a short window, provides new conditions for economic and social change (Cowen, 2014; Vallas & Pankovits, 2010). This is the case in Puerto Rico where areas such as health reform, education, job training, housing improvements, and restructuring of the economic base are opportunities that demand an investment of public and private capital.

Furthermore, the international attention, federal aid, private donations, and the work of Puerto Ricans that reside in the United States in helping fellow Puerto Ricans that remained on the island have generated emergency capital that, if managed well, can alleviate the immediate effects of the hurricane and set the island on a new trajectory. (Ferre-Sadurni, Alvarez, & Robles, 2017)

A Higher Education strategy is paramount to forging a new economic model for the Island that is progressive, equitable, sustainable and focused on common prosperity. What makes post-Hurricane Maria so devastating is that Puerto Rico was already going through one of its most challenging economic times. The country struggled with the impact of mounting government debt, bankruptcy, the exodus of private sector

anchors, out migration of residents and intellectual capital to the United States, and a collapsing system of K-12 and higher education (Bosworth & Collins, 2006; Federal Reserve Bank of New York, 2012).

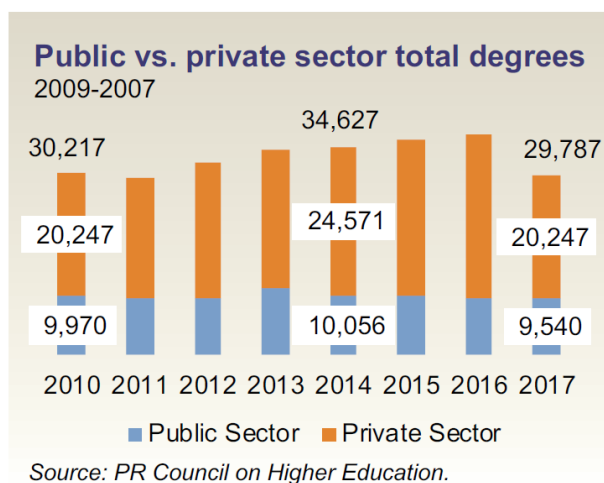
The causes for the economic devastation of Puerto Rico are varied and influenced by elements of a political structure that requires rethinking, an economic model that has hinged on borrowing to cover the government expenditures, a culture of partisan fanaticism that strangles innovation and responsibility, and a neglectful treatment of children and families. In June 2015, the government of Puerto Rico announced the Island would default on its public debt of \$74 billion plus \$49 billion in unfunded pension liabilities.

In June 2016, US Congress appointed an oversight board through the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA) to take over the financial management of Puerto Rico and spearhead the process to regain fiscal sustainability. In the midst of these pre-Maria circumstances, the impact of Hurricane Maria intensified what was already a critical situation in Puerto Rico and placed the island in a survival mode.

Higher Education emerges as an anchor with assets for a new industry

The number of degrees conferred by private higher education institutions in Puerto Rico has steadily grown since 2009, granting more than half of total degrees in comparison to the public higher education system. While the number of degrees remained virtually flat from 2009 – 2011, there were minor increases

from 2001- 2016. For the 2016-2017 year, there was a significant drop in the overall numbers. Post-Hurricane Maria, this number is expected to drop as many institutions had to close and many students either did not attend schools or decided to complete studies in United States universities. For the 2016-2017 academic year, higher education enrolled 227,255 students.



The Higher Education system in Puerto Rico comprises one public university system and a large network of private higher education institutions offering a variety of degrees. The University of Puerto Rico is the state university; receives 68% of its funding from the government of Puerto Rico; and operates 11 regional campuses with Rio Piedras serving as its headquarters and Mayaguez as the STEM campus. Through its Medical School, it also administers the Hospital Universitario (University Hospital) de Carolina Dr. Federico J. Trillas, which serves approximately 58,000 people annually. The faculty at the Medical School plays an important role in providing healthcare for the entire Island through their work with tertiary health institutions and

hospitals, including Centro Medico, which is the largest tertiary health provider in the Island. Its programs cover multiple specializations including: medicine, pharmacy, nursing, dentistry, public health and allied health professions. Together with other advanced programs such as social work and psychiatry, the UPR Medical School produces quality health professionals that serve the population in critical areas. (Plan SoS UPR, 2.0, March 2018)

Overview of the University of PR system and student enrollment for 2015-16			
University	Undergraduate	Graduate	Total
UPR- Rio Piedras	13,472	3,400	16,872
UPR-Mayaguez	12,283	1,033	13,336
UPR-Bayamon	4,927		4,927
UPR- Arecibo	4,150		4,150
UPR-Humacao	4,037		4,037
UPR-Carolina	3,920		3,920
UPR-Cayey	3,755		3,755
UPR-Ponce	3,630		3,630
UPR- Aguadilla	3,396		3,396
UPR-Medical Science	388	1,889	2,277
UPR-Utuado	1,469		1,469

Source: Puerto Rico Council of Education, 2017

The UPR also houses important partnerships through programs such as Programa de Acceso e Integración Deporte Comunitario (PAIDCO), which leads in the promotion of physical activity and wellness; the Proyecto Enlace Caño Martín Peña, which promotes environmental health for the residents in communities from the G-8; and the alliance with the Ricky Martin Foundation and the Office for Women Rights in promoting education programs for women, as well as combating issues of human trafficking. At the Mayaguez Campus, these efforts include

SIEMPREVIVAS Project, the University Institute for Community Development, the Red Sísmica, the Sea Grant Program and the various offices housing the agricultural extension programs, as well as experimental stations that promote the development of communities, the safety of people and communities in the presence of earthquakes and tsunamis and environmental conversation. (Plan SoS UPR, 2.0, March 2018)

The private Higher Education system has grown substantially in Puerto Rico and receives most of their funding from the combination of Pell grants and tuition revenue from students. On the positive side, most students enrolled in higher education are completing 4-year degrees and the number of students completing graduate degrees at the master's and doctoral levels has been increasing.

Key indicators of the higher education sector in Puerto Rico compared to the United States reveal that Puerto Rico outperforms the rest of the United States in spending on education as a whole and as a percentage of its GDP (6.4% in PR compared to 5.4% in the US) but falls behind in other indicators related to higher education.

Higher Education has been an important cornerstone of Puerto Rico's economy and in particular, has a track record for providing quality academic choices to its students. A report commissioned by the Federal Reserve Bank of New York in 2012 points to a number of features that make Puerto Rico potentially competitive, including: high literacy rates, a labor force that is largely bilingual, a favorable location for business, and Puerto Rico's political association with the United States. These potential advantages are

paralleled by severe development areas, such as, underutilization of labor resources, high unemployment, and low labor force participation (Federal Reserve Bank, 2012).

Now more than ever, addressing these challenges are at the core of the future of Puerto Rico and require out-of-the-box, innovative, and integrated solutions that focus on alignment, consistency, and investments on the local human and social capital. Higher Education and the K-12 educational system play paramount roles in ensuring that the competitive edge for Puerto Rico is maximized and that the human and intellectual capital is nurtured, sustained and retained.

College and universities play a fundamental role in advancing the new knowledge economy and therefore any strategy for economic development must integrate these institutions as important anchors in four core areas: education, innovation, knowledge transfer, and community engagement (Shaffer and Wright, 2010).

Therefore, the Higher Education sector must be at the forefront in providing a comprehensive strategy to address a new economy that produces social and economic development and is grounded on innovation. These imperative demands for colleges and universities to better align educational trajectories to the preK-16 system, as there lays the true potential for making education an extraordinary asset for local economic and social development (Bonilla-Santiago, 2014; Shaffer and Wright, 2010).

Overview of the private higher education
system student enrollment for 2015-2016

Universities in PR	Undergrad.	Graduate	Total
Ana G. Mendez System			
Universidad del Turabo	14,170	2,997	17,167
Universidad Metropolitana	11,231	2,405	13,636
Universidad del Este	11,000	1,401	12,401
AGMS Campus	N/A	80	80
Inter-American University System			
Metropolitan Campus	6,314	2,530	8,844
Ponce Campus	4,871	421	5,292
San German Campus	4,031	691	4,722
Bayamon Campus	4,328	122	4,450
Arecibo Campus	3,976	464	4,440
Aquadilla Campus	3,964	241	4,205
Fajardo Campus	1,982	168	2,150
Barranquitas Campus	1,902	74	1,976
Guayama Campus	1,815	115	1,930
School of Law	N/A	769	769
School of Optometry	N/A	231	231
Other Private Universities			
American University	1,343	84	1,427
Conservatory of Music	406	39	445
Escuela de Artes Plásticas y Diseño	555	N/A	555
Centro de Estudios Avanzados PR	N/A	514	514
EDP University of PR	2,623	152	2,775
Evangélica Seminary of PR	N/A	202	202
National University College	10,341	794	11,135
Universidad Central del Caribe	131	315	446
Universidad Central de Bayamon	1,315	350	1,665
Universidad del Sagrado Corazon	4,302	519	4,821
Universidad Politécnica	3,334	870	4,204
Universidad Adventista de las Antillas	1,256	136	1,392
Colegio Universitario de San Juan	1,528	N/A	1,528
Pontifical Catholic University	7,323	2,653	9,976

Source: Puerto Rico Council of Education, 2017

Key higher education indicators PR & US (2016-2017)

Indicator	PR	US
GDP value of whole education sector	6.4%	5.4%
GDP value of higher education	3.6%	4.1%
% of Workforce in higher education	1.8% [^] **	2.6%**
College Graduation Rate	24.6%***	53.8%****
College Retention Rate	72.0%	74.4%
% of Public Universities to Total Number of Universities	17.0%	35.0%
% of Private Universities to Total Number of Universities	83.0%	65.0%

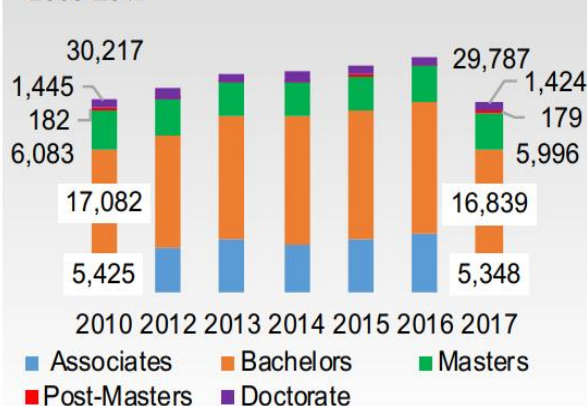
Source: UNESCO Institute for Statistics, Bureau of Labor Statistics, 2017; [^]Puerto Rico Council on Higher Education, 2017; National Center for Educational Statistics, 2017, American Community Survey, 2017; U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

This will require rethinking on how the higher education sector evolves as part of the long-term solution and to ensure that educational pipelines from early childhood through college and careers are built and aligned to the labor force (Shaffer and Wright, 2010). Puerto Rico needs a competitive workforce to forge and sustain a new economy and improve the standard of living for its people.

A conceptual model with Higher Education as a community capital asset

Higher Education is the anchor for change and sustainable development. The Community Capitals as Assets Framework informs this vision (Emery, Fey & Flora, 2006). Hence, we focus on eight capitals that are the core of transformative development: financial capital, built capital, human capital, intellectual capital, social capital, cultural capital, political capital, and natural capital. The Community Capitals as Assets framework is used as an analytical tool for evaluating

Degree allocation, all universities 2009-2017



Source: PR Council on Higher Education.

sustainability performance on the island (Emery, Fey & Flora, 2006). This framework is used widely in regional and community development practice as a tool for identifying assets and integrating them as strategies in a system of sustainability.

PR community capitals as assets for sustaining a higher education system

Assets	PR Higher Education Ecosystem
Cultural	Sense of Identity, Customs, Cultural Heritage & History, Multicultural experiences- programs, initiatives and events which attracts students from other countries, Religion
Political	Elected Officials, Local and State Government, Federal government grants for Higher education: Federal Pell Grant, Federal Supplemental Educational Opportunity Grant, Stafford Student Loans
Social	National & International Collaboration, Local/State Collaboration, Philanthropy Volunteers, Universities, Non-Profits, Partnerships between private sector, government and other institutions
Human	Community Members: Families and Children; People, Shared Purpose and Value
Natural	Assets in location: Island, Tourism, Natural Beauty, Ocean, Coast, Land for: Playgrounds & Parks, Forests, Agriculture, Growth for new Projects, Biodiversity
Finacial	Banks, Funders, Grants, Foundations, Local, State and Federal Government, External funding for the promotion of educational activities
Intellectual	Universities, schools, Research, online courses and programs for students, Knowledge, Access and use of technology, distinguished faculty
Built	Buildings-historical, Hospitals/Health Infrastructure, Public Buildings, Transportation, Roads, Public Infrastructure

Source: Emery, Fey & Flora, 2006

When applied to the higher education sector, these assets provide a compass for identifying strengths and opportunities within the context of the challenges facing Puerto Rico, as follows: (a) Political/Financial capital in terms of income, political connections and financial resources available or with potential to be generated; (b) Built capital refers to the physical infrastructure, such as buildings and technology available for community as well as resources for business development, community building and resources generated through public/private partnerships for development; (c) Human/Intellectual capital as it relates to the skills and knowledge that

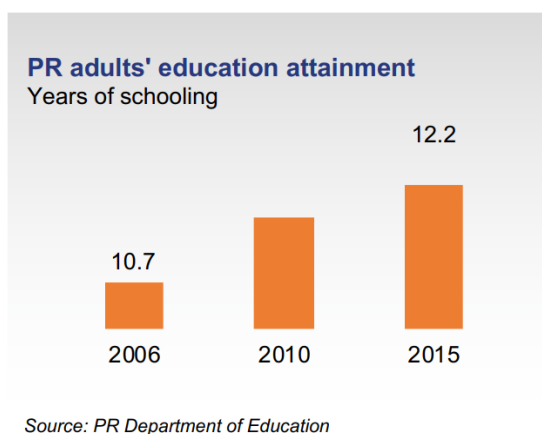
enables people to work, earn a living and lead in a new economy; (d) Cultural/Social capital in terms of the creation and sustainability of networks and relationships of trust and reciprocity that enable people and organizations to collaborate; and (e) Natural capital as it relates to access to key environmental resources, such as water, agriculture, land, clean air, fisheries, and forests, all within the context of research, development and applied learning. (Brereton & Pattenden, 2007; Emery, Fey & Flora, 2006)

Colleges and universities are important anchors in bridging these capitals to create opportunity, build the capacity of people, and engage the private and public sectors, and foster innovation and change. In any economic model with potential for success, the role of higher education institutions in knowledge creation, knowledge transfer, community revitalization, and human capital development must be placed front and center.

The Higher Education sector as an asset

The Higher Education sector occupies an important role in the economic stability of the Island. Education in Puerto Rico has long been considered a gateway to upward social mobility for individuals from lower socio-economic backgrounds, and as a way of improving social advantages. With the increase in the number of young people entering the university, the higher education system has reached a saturation point for several decades.

The expansion witnessed in participation rates over the last few decades has largely been achieved by a modest broadening of the base of the undergraduate population in terms of social class. It was not long ago that Puerto Rico was making great strides in educating its citizens. According to a Brookings Institute study (2006) from 1960 to 2000, “the average schooling of Puerto Ricans 25 years or older increased from 6.2 years to 11 years: an achievement unmatched by any other country in the world”. (Ladd, & Rivera-Batiz, 2006) The level of educational attainment of Puerto Ricans in the Island has steadily increased in the last decade.



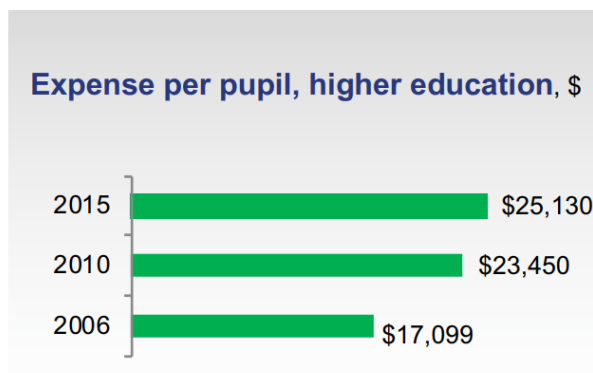
The level of schooling of Puerto Ricans exceeds that of the best educated countries in Latin America and is one year below the U.S. level at 12.5 years. (Collins, Bosworth, & Soto-Class, 2006) This is the kind of indicator that compares favorably with the Organization for Economic Cooperation and Development (OECD) countries and places Puerto Rico in a competitive position.

Throughout its history, Puerto Rico has invested in education as it has always

represented the best strategy for sustaining the Island and progressing into the future. A highly educated workforce was in part a significant incentive for US companies, especially pharmaceutical and high-tech companies, like Hewlett Packard, to establish operations on the Island.

Universities, such as the University of Puerto Rico Mayaguez Campus and the Polytechnic University became important developers of human and intellectual capital and have been effective in preparing productive workers with the necessary levels of competency and skill to thrive in the private sector and STEM focused industries.

The significance of this human asset is reflected in the investment per student at Public Institutions of Higher Education in Puerto Rico (mostly the University of Puerto Rico (UPR)). In 2010, UPR invested \$23,450 per student. Although this number is significantly lower than the investment per student at public research universities in the U.S. (\$43,250) for the same year, it must be understood that the difference reflects the higher GNP per capita of the U.S. relative to Puerto Rico.



Source: PR Council on Higher Education

Despite its many challenges and economic limitations, education in Puerto Rico is treated as an important asset for building the economy and for preparing its future workforce. The changing economic outlook compounded by rising poverty rates and the outflow migration of people have contributed to a steady educational decline as early as 2006. According to the Brookings Institution 2006 Report on The Economy of Puerto Rico, “the K-16+ education system was not delivering the well-trained workforce that Puerto Rico needed.”

In order for Puerto Rico to compete in the knowledge economy of the 21st century, it “needs to make an infusion and investment into the economy and Puerto Rico needs to grow.” As the Report from Brookings indicates, the solution to this challenge is not only investing more in education, but also restructuring higher education and aligning K-12 education to make the systems more efficient, competitive, innovative and effective.

The current economic situation places a high priority on investing in higher education. (Bram, Martinez & Steindel, 2008) However, funding for higher education is at an all-time low. In order to place higher education within the context of economic development, it is important to review the dominant sectors of the Puerto Rico economy in terms of production and income.

The manufacturing sector represents 47% of total production but only 8% of jobs contributing \$50 billion to Gross Domestic Product (GDP) in FY 2016. (PR Planning Board, Economic Report to the Governor, 2016) The manufacturing sector, which once

was the predominant industry in Puerto Rico, has undergone fundamental changes over the years as a result of increased emphasis on higher-wage, high-technology industries, such as pharmaceuticals, biotechnology, computers, microprocessors, professional and scientific instruments, and certain high technology machinery and equipment.

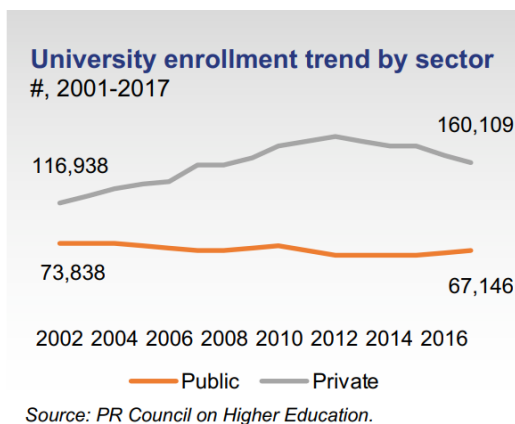
(Burtless & Sotomayor, 2006) This sector has weakened even further as a result of the end of the phase-out of Section 936 of the U.S. Tax Code (which stipulated the tax benefits for US domestic corporations operating in Puerto Rico), the net loss of patents on certain pharmaceutical products, the escalation of manufacturing production costs (particularly labor and electricity), the increased use of job outsourcing, and, currently, the effects of the global economic decline and the recent US Tax and Jobs Act of 2017.

Despite these challenges, manufacturing still dominates the other sectors in terms of production. The service sector, which includes insurance, real estate, wholesale and retail trade, transportation, communications and public utilities, and other services, follows with a contribution of \$38.7 billion or 37% of PR’s GDP in 2016. (Government of Puerto Rico, 2016)

The economic decline that escalated in 2006 has continued on a steady downfall through 2017 and it has naturally impacted the higher education sector. Enrollment in private universities declined by half a million students, almost 11.85%. (Matos, 2017)

The roots for this decline stem from deep economic stagnation, changing demographics for the island and a government leadership that has neglected the sector as a

viable contributor to community and economic growth. (Bosworth & Colling 2006)



Post-Hurricane Maria conditions have worsened due to the devastation of Built Capital (infrastructure, energy, ports, telecom,) and the exodus of Human Capital (people, students, businesses and faculty members). Recently, Governor Ricardo Rossello's administration articulated the importance in forging partnerships with these institutions for the overall economic recovery of the Island. Companies like "Microsoft, Lufthansa, Bacardi, Medtronic, Amgen and Sartorius have invested for a long time in Puerto Rico and have made a commitment to Puerto Rico. Others, including Tesla and Google, are investing in the island's recovery - from innovation to renewable energy - which helps revitalize the future of Puerto Rico". (Irfan, 2017)

Impact of Hurricane Maria on Higher Education institutions

After it struck, Hurricane Maria exacerbated the already fragile infrastructure of the higher education system in Puerto Rico, with the largest effects in terms of physical

damages to university properties and research stations and the decrease in student enrollment and migration to the mainland United States. The aftermath has altered the course of academic instruction and research throughout the island as students and faculty adjust their schedules and plans. The uncertainty of students returning to Puerto Rico to complete their studies and the significant financial losses have left the university structure in flux as administrators determine how to revise the academic programs.

The University of Puerto Rico, Puerto Rico's largest public university system with 11 campuses across the island, suffered almost \$120 million in losses. The Humacao campus alone experienced \$35 million in losses, including damage to athletic fields and academic buildings. (Colón Dávila and Figueroa Cancel, 2017)

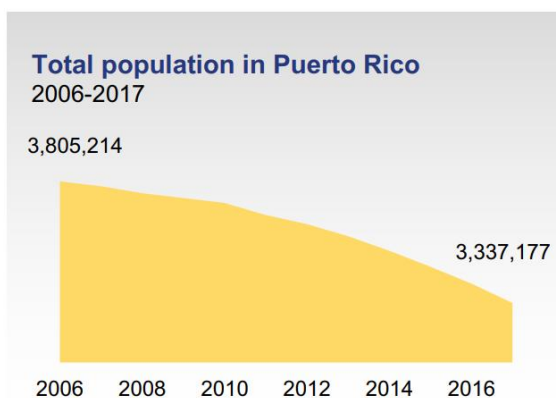
The Rio Piedras campus, located in the municipality of San Juan, had significant damage of natural capital (forest, vegetation, green spaces, and trees,) along with collections of law library books and student residential and science buildings. (Rodríguez, 2017)

Other campuses, including Arecibo, the School of Medical Sciences, Carolina, and Bayamon, experienced loss in electricity and damages to labs containing animals and plant life. (Colón Dávila and Figueroa Cancel, 2017) Other universities experienced widespread damage as well. The Universidad Sagrado Corazon in San Juan lost electricity for 40 days, which affected labs, computers and recording studios.

In order to save the academic year, Professors assigned special projects, moved night classes to the weekends and extended the length of the academic calendar. (López

Alicea, 2017) Sistema TV, a PBS affiliate housed at the Ana G. Mendez University and was disconnected when the hurricane struck (Noticel, 2017) and as yet, has not reopened. The hurricane produced widespread disruption in all of university operations throughout the island, creating massive disturbances and delays in the academic trajectory of students.

According to the Center for Puerto Rican Studies at the City University of New York, between 17,000 and 32,000 students between the ages of 18 and 24 will leave Puerto Rico, a dramatic increase from the annual average for the past three years of 9,700. (Korn, 2017) As of December 1, 2017, the University of Puerto Rico reported that it lost over 1,500 students (Duany, 2017), representing a 2% drop in total student enrollment (Agencia EFE, 2017), most of whom transferred to mainland universities, including several in Florida, New Jersey, New York, Connecticut, Rhode Island, Louisiana, Texas, and California, who have offered in-state tuition rates, scholarships, and other financial assistance. (Duany, 2017) Candidates eligible for graduation decreased from 58,600 to 57,700 at the UPR Rio Piedras campus, which experienced significant damage from the storm. (Agencia EFE, 2017)



Source: US Census Bureau

Student transfers to the mainland are a critical drain to the human and intellectual capital of the university system. As the island slowly recovers, it is still early to determine how many students will return to Puerto Rico to either complete a degree or utilize a degree obtained at a mainland institution to improve economic and social conditions on the island.

Incentives and programs to entice students to return will have to be conceptualized. Five months after Hurricane Maria struck, 28% of Puerto Ricans still lack electricity (Mazzei, 2018) and approximately two-thirds of the population are at a severe risk of drinking contaminated water. (Panditharatne, 2017)

These numbers continue to rise as recovery has been very slow. By all accounts, the response from the federal government has been inadequate and neglectful, particularly around the provisions of clean drinking water, hot meals, and adequate shelter. (Konyndyk, 2017) FEMA assistance, along with local municipal support for housing and relocation, is already dissipating for families migrating to the mainland. The recent U.S. Tax Cuts and Jobs Act approved by US Congress in December 2017 poses another challenge to investment by US companies by operating in Puerto Rico as foreign companies or Controlled Foreign Corporations (CFCs). Worldwide, CFCs are subject to a 12.5% tax on intellectual property.

This could discourage companies from establishing a presence, recruiting university students, and partnering with faculty on innovative business approaches. (Mazzei, 2017) There is some hope, however, as the recently proposed U.S. budget included \$17

billion to provide relief to Puerto Rico.
(Mazzei and Williams Walsh, 2018)

The structural provisions of the recent legislation, though, could hurt employers' abilities to make long term contributions to the economic wellbeing of the workforce and accelerate growth on the Island. The new reality of Puerto Rico poses challenges to the Island's assets in the higher education system.

Trends impacting Higher Education

Mega trends impacting the future of many universities around the globe also shape the future of the Puerto Rico higher education system.

Therefore, Puerto Rico higher education leaders need to rethink the place of education in preparing the future workers, entrepreneurs, innovators, and retraining the current workforce given the new challenges of the post Maria devastation and economic crisis. Some of these trends are related to labor market shifts and the rise of automation. There will be a demand for specific skills, and it is expected that the workplace will undergo a dramatic transformation that demands for people to master workplace-ready skills, including creating spaces and programs to train workers in technical and skilled manual work, i.e., electricians, plumbers, and chefs, which are trades that are the hardest to automate.

Retraining and reinventing the approaches to prepare people in many other occupations, such as law, accounting, routine computer programming, journalism, and data processing is also essential to prepare people for fields that have already being disrupted by global trends. (Finegold, David, 2018) The trend is for the market to develop more entrepreneurial and resilient students who will

be willing to reinvent themselves multiple times in their educational trajectory. Another trend deals with the economic shifts toward emerging markets in that enrollment worldwide in higher education has experienced an expansion in middle income nations interested in STEM fields, especially in countries, such as, Brazil, Russia, India, China, South Africa, and others in Latin America. Higher Education leaders should start looking for ways to reach out to students globally. We need to increase more global collaboration and partnerships to address the geographical isolation of the island and put Puerto Rico at the table with collaborators and competitors.

The growing disconnects between employer and college experience which will require higher education institutions as well as K-12 systems to maximize its focus on technology integrations, proficiency, blended learning, and augmenting the development of joint ventures and institutional partnerships. With the increase in migration to the mainland, growth in urbanization and the shift toward cities, universities in Puerto Rico might consider creating hubs where partners and collaborators come together from all over the world to enable education for all and use their different talents and expertise to help restore PR's trajectory to prosperity.

Puerto Rico needs to become globally engaged to attract multisector cooperation from higher education to industry, professionals, business and students. As resources, spending and budgets become less accessible, Higher Education will have to share resources and utilize emerging technologies like massive online courses

incorporating the concept of “utilizing globally but assessing locally”. (Holmes, Trevol, 2015)

We need to envision education as a lifetime experience and acknowledging that investing in basic skills, such as reading, writing, critical thinking and creativity are necessary for developing and sustaining the human assets that are essential for the future of Puerto Rico. Faculties in all fields in the various universities, public and private, need to play a key role in PR’s future, including Schools of Education that are charged with preparing the future K-12 educators that will shape and prepare generations of future college student, entrepreneurs, scientists, and workers.

Challenges and assets for addressing higher education	
Challenge	Opportunities
Lack of innovative approaches for creating new businesses and for attracting high tech companies to establish operations on the Island. This is crucial to building the demand for jobs and for strengthening the economic tax base of the country.	The universities play a paramount role in advancing innovation through new technologies, new processes, new products, and new ideas that can be catalysts for rebuilding the local economy and for connecting Puerto Rico to the global economy. University faculty and talented students can leverage their strengths in knowledge creation to generate economic benefits. The Higher Education sector can support the private sector through knowledge transfer that is deployed through worker training, capacity building for management, help in incubating start-up businesses and development of industrial parks and small business incubators.
An ineffective K-12 system that is failing to prepare students that are ready for college and career. Puerto Rico’s public education system is broken, inadequate and a contributor to inequality.	Higher education can be a catalyst for transforming the way in which K-12 education is delivered in Puerto Rico in a variety of ways, including: working with the Department of Education in restructuring and reinventing the organization, governance and structure of schools. The new proposal to establish charter

There is a lack of alignment between the K-12 and college sectors, including birth through college pipelines.	<p>schools is an important strategy as it has worked well in some of the most compromised urban school systems in the United States and was in fact, an important factor in rebuilding New Orleans’ educational system post Katrina.</p> <p>Higher Education is also an important resource in transforming teachers and school leadership preparation. Teachers and principals are at the core of good schooling and hold the keys for transferring teaching and learning. Puerto Rico has an opportunity to adopt programs that place education students in classrooms as part of the required teaching clinical experiences under the supervision of talented faculty and outstanding teacher mentors. Teacher Residencies like the Boston Residencies could serve as models for replication.</p>
The labor force in Puerto Rico needs retraining and new training and preparation to be a viable resource.	<p>The Higher education sector must be able to adapt and customize its educational range to the needs of the country. Edward Glaeser of Harvard and Albert Saiz of the University of Pennsylvania conclude that “generating new technologies locally does not seem as important as having the capacity to adapt them” (Glaeser and Saiz, 2003). The university needs to assess its teaching and learning focus to ensure that they can align the role of knowledge creation through research and technology transfer with that of knowledge transfer through education and human resource development. Workforce development is crucial and in the spirit of developing a cohesive higher education sector, the role of the junior colleges needs to be revisited as they should play an important role in developing 2-year programs that lead to certificates and that prepare students to enter the workforce as well as to continue into a four-year degree. Academic program development needs to be aligned to the needs of industry and business to ensure that training leads to jobs and that companies can get the human capital that is necessary to thrive and be competitive in the business sector. Training programs should be consolidated into a single entity to ensure alignment and usefulness. One example comes from Georgia Tech and its Enterprise Innovation Institute.</p>

<p>Puerto Rico Higher education system housing has collapsed along with basic services and a loss of safety and hopes for prosperity.</p>	<p>Higher education is critical in addressing issues of community development in a number of ways. Universities occupy strategic real estate in communities across the island. Therefore, they need to be involved to ensure that they are part of the community life that surrounds their campuses and that they create opportunities for community-university exchanges, including sharing of facilities, boosting local business and engaging in promoting and preserving the cultural life. Universities also are responsible for training those that work with communities including teachers, social workers, and public administrators, among others.</p> <p>With this in mind, it is of paramount importance for the higher education sector to revisit how teaching and learning is delivered to better prepare workers for the public and third sectors.</p> <p>In addition, strategies such as Americorps should be explored to expose students to service learning, co-ops and experiential learning as part of their training. This is a win-win as the student benefits and the community also benefits.</p>
<p>The Higher Education system in Puerto Rico lacks a management information system that is updated. The system now is inefficient, overly dependent on government subsidies and has not caught up with the new realities of operating the institutions as enterprises.</p>	<p>The system needs to be structured to capitalize on the diversity of strengths of the various institutions, both public and private. A Higher Education Consortium should be in place to facilitate the kind of articulation that is necessary. The tuition costs for the public university needs revision and adjustment. A system of scholarships should be in place to assist the neediest students. However, scholarships should be accompanied by a requirement for students to remain working in Puerto Rico for at least five years. The concept of internationalizing the academia should be a strategic element to raise the level of talent as well as income. This can be done by promoting, marketing and aggressively recruiting international students to come study in Puerto Rico. These students pay a higher tuition rate and cover their costs. Further, partnerships with universities in the US and other countries should be forged to allow for joint academic offerings.</p>

<p>Puerto Rico's economy has been hit hard and the path to a failing economic model started decades ago and has reached a breaking point. The political debacle of the status of Puerto Rico is a critical element. However, the country needs to create two pathways—one that reinvents its economic model in spite of the political relationship of annexation with the US and one that is developed under a new set of political conditions whether the island becomes a state or reaches higher sovereignty.</p>	<p>Higher education is equipped with the talent and research prowess that is necessary to incubate innovation. Since innovation begins with research, universities can secure the resources and develop the conditions and mechanisms to engage its best faculty in purposeful research that leads to business development. Higher education should be a partnership with government and the private sector in Puerto Rico to create business clusters, industrial parks and launching efforts that are built in the concept of “knowledge economies”. Four areas of development are at the core of facilitating this transformative change in the role of the university: 1) attracting and retaining a cadre of talented and prominent faculty; 2) engaging university leadership that can think “outside the box” and that conceive a university that is an anchor for building the future trajectory of the country; 3) the physical infrastructure needed for research and development, such as labs, research parks and classrooms; and 4) the type of flexibility and facilitative environment that frees up the university to commercialize research outcomes. This approach needs to encompass collaboration among all institutions of higher education and therefore, a country-wide mechanism for collaboration and sharing needs to be in place.</p>
--	--

Conclusion:

In sum, the Puerto Rico Higher Education system must become part of the new emerging economy and serve as a catalyst for transforming the island through new technologies and resilient power networks partnering with private industry to modernize infrastructure, implement broadband across the Island, and upgrade research facilities and rebuild a new education system.

A stronger Puerto Rico with a thriving economy will create huge opportunities. The old model for economic development efforts

that is centered only on financial incentives, infrastructure development, land and capital development, and labor policy, among others, needs to be transformed to meet new challenges. The new paradigm for economic development is to make the shift to a “knowledge first” approach that builds on higher education’s capacity to connect with all sectors that are invested on economic development. (Romero, 2011) In the short-term, the Federal commitment to jumpstarting the economic growth in the island has been crucial to help Puerto Rico turn its economy around. (Klapper, Lewin & Quesada Delgado, 2009)

Congress would benefit from implementing a comprehensive economic program, remove some of the disadvantages imposed on Puerto Rico under the current political arrangement, and eliminate some long standing inequitable and discriminatory policies. A thriving, educated Puerto Rico benefits the US economy. Within the constraints posed by its political status, Puerto Rico needs to craft a long-term local economic development strategy. This strategy should consist of sectorial, horizontal, and institutional policies to promote Puerto Rico’s capability to progressively move into higher value-added activities. (Romer, 1990)

Post Maria, Puerto Rico now faces significant fiscal distress, deficits, crime, population decline, and economic crises. However, Higher Education Institutions on the island have available talent, skill and intellectual and human capital available to refocus its training to address the economic crises.

As mentioned earlier, the Prek-12 system is essential, and Schools of Education

need to be strengthened and be highly selective when choosing entrants. These graduates will teach pre-K, K to 12 students of the future Puerto Rico and there lies the Island’s biggest resource. Therefore, we need to align the Island’s talent with the needs of the economy now more than ever.

The road to recovery and solvency is going to take time and it requires a reinvention of training in new industries and an infusion of investment in capital and opportunities in emerging markets, tourism, agriculture, energy, ports, telecom, manufacturing, transportation, housing, education, and the human and social capital available around the globe.■

REFERENCES

- Alvarez, L., (2017). As Others Pack, Some Millennials Commit to Puerto Rico. *New York Times*.
- Bonilla-Santiago, G. (2014). *Miracle on Cooper Street, Lessons from an Inner City*: Archway Publishing.
- Bonilla-Santiago, G. (2017). The Puerto Rican catastrophe, a re-examination of the U.S. relationship. *Puerto Rico needs us now*. Retrieved February 19, 2018, from https://www.huffingtonpost.com/entry/the-puerto-rican-catastrophe-a-re-examination-of-the_us_59cf6d1de4b034ae778d4aba?ncid=engmodushpmg00000004%40HuffPostBlog
- Calderón Soto, J. (2014) "Decrease in student enrollment in the last decade represents a loss of human capital in Puerto Rico", *Puerto Rico Planning Board, Economic Summary of Puerto Rico - Special Supplement: Children and adolescents*, p 19
- Colón Dávila, J. and Figueroa Cancel, A. (2017). “El huracán María muestra lo vulnerable de la UPR.” *El Nuevo Día*.
- Cowen, S. (2014). *The Inevitable City: The Resurgence of New Orleans and the Future of Urban America*. New York, NY: St. Martin’s Press.
- Crespo, Cuaresma, Hlouskova, J.J. & Obersteiner, M. (2008), “Natural disasters as creative destruction? Evidence from developing countries”, *Economic Inquiry* 46, 214-226.
- Emery, M., Fey, S., & Flora, C. (2006). Using Community Capitals to develop Assets for Positive Community Change. *Community Development Society*, (13)1-19.
- FerrÉ-sadurnÍ, L., Alvarez, L., & Robles, F. (2017). Puerto Rico Faces Mountain of Obstacles on the Road to Recovery. Retrieved February 2018, from <https://www.nytimes.com/2017/09/21/us/hurricane-maria-puerto-rico-recovery.html>

- Hernandez, J. C., Roman, W., Blas, S., Crespo, H., Rosario, Y., & Olmedo, J. (2015). Chapter 9. In *ECONOMIC DEVELOPMENT PLAN FOR PUERTO RICO 2015 EDUCATIONAL SERVICES SECTOR* (EDUCATIONAL SERVICES SECTOR DEVELOPMENT PLAN). San Juan : Puerto Rico Planning Board.
- Irfan, U. (2017). Puerto Rico is starting to take solar power more seriously. Retrieved February 19, 2018, from <https://www.vox.com/energy-and-environment/2017/10/19/16431312/elon-musk-richard-branson-clean-energy-puerto-rico-solar-batteries-microgrid>
- Konyndyk, J. (2017). Analysis: Hurricane Maria Killed 64 Puerto Ricans. Another 1,000 Died Because the Disaster Response Was Inadequate. *The Washington Post*.
- Ladd, H., & Rivera-batiz, G. (2006). Education and Economic Development. Retrieved from http://www.columbia.edu/~flr9/documents/Ladd_Rivera_Batiz_%20Education_Development.pdf
- Matos, A. (2017). Meet The Millennials Re-Building Puerto Rico After Hurricane María. Retrieved February 19, 2018, from
- Mazzei, P. (2018). What Puerto Rico Is, and Isn't, Getting in Disaster Relief. *New York Times*, Retrieved February 10, 2017
- Meléndez, E., & Hinojosa, J. (2017). Estimates of post-hurricane Maria exodus from Puerto Rico. *Center for Puerto Rican Studies-, US Census Bureau- Puerto Rico Community Survey, National Hurricane Center*.
- Meléndez-Olivera, G. (2017). President Trump's Response to Hurricane Maria in Puerto Rico Confirms Second-Class Citizenship. Retrieved February 2018, from <https://www.aclu.org/blog/human-rights/president-trumps-response-hurricane-maria-puerto-rico-confirms-second-class>
- Middle States Commission on Higher Education (2017). *Middle States Commission on Higher Education*. Retrieved February 10, 2017, from http://www.msche.org/Institutions_Directory.asp
- Panditharatne, M. (2017). New Data: 2 Million Puerto Ricans Risk Water Contamination. *Natural Resources Defense Council*, Retrieved February 15, 2017, from <https://www.nrdc.org/experts/mekela-panditharatne/over-2-million-puerto-ricans-risk-bacteria-water>
- The Puerto Rico Report, (2016). The End of Section 936. *Puerto Rico Report*, Retrieved February 15, 2017, from <https://www.puertoricoreport.com/the-end-of-section-936/#.Woc1hainG72>
- Quintana Díaz, J. (2014). The enrollment of the public education system and its projections by grade ', *Puerto Rico Planning Board: Economic Summary of Puerto Rico*, Special Supplement: Children and Adolescents, pp. 2-11
- Rodríguez, P. (2017). "Mas daños en la UPR por María." *El Vocero.com*.
- Romero, M. (2011). Puerto Rico Economic Analysis Report 2010-2011. Retrieved from https://www.doleta.gov/performance/results/annualreports/2010_economic_reports/pr_economic_report_py2010.pdf
- Schramm, R. (2000). Building higher education-community development corporation partnerships. DIANE Publishing.
- Skidmore, M & Toya, H. (2002). "Do natural disasters promote long-run growth?", *Economic Inquiry* 40, 664-687
- United States Census Bureau (2012). American Community Survey.
- United States Census Bureau (2012). Median earnings in the past 12 months by sex by educational attainment for the population 25 years and over. American Community Survey.
- United States Census Bureau (2012). Educational Attainment by employment status for the population 25 to 64 years. American Community Survey.
- United States Census Bureau (2012). Educational Attainment. American Community Survey.
- Vallas, P. & Pankovits, L. (2014). Education in the Wake of Natural Disaster. *Woodrow Wilson International Center for Scholars*.

Higher Education for Puerto Rico's Future

Recovery and Sustainability

Gloria Bonilla-Santiago, Ph.D., Heidie Calero, JD, Wanda Garcia, MSW, Matthew Closter MPA, MS, & Kiersten Westley-Henson, MA

Overall, Puerto Rico's future recovery requires a sustained large-scale strategy that engages multiple sectors, the political establishment and the residents of the Island. Given that Puerto Rico is a territory of the United States, it also requires a bipartisan commitment from the United States Congress to rebuild its future. Rebuilding Puerto Rico will require tens of billions of dollars in new capital investments, which will only be possible with substantial new multiyear resources from the US federal government, as well as funding parity with programs such as Medicaid, education, housing and business development.

These federal funds must be linked to a clear and strategic public re-investment plan that is grounded on a new vision for a stronger economic future for Puerto Rico. The federal government has funds available through entitlement programs, such as the funds that are coming to the Island for disaster recovery through CDBG grants; as well as competitive opportunities for funding innovative ideas that can be turned into advantages for the Island and its people.

Any long-term strategy must include a commitment of the local political and civic leadership for reinventing the approaches to development and for forging a vision that builds on local capacity, is grounded on existing resources already available through the Island's higher education system, capitalizes on the natural resources of the Island, and invests on people and communities. Puerto Rico needs policy advisors and lobbyists to aggressively

marshal new immediate resources for comprehensive recovery and transformative development of the island, as well as entrepreneurs that can leverage private funding for transformational initiatives.

The higher education sector represents an important resource and an absolute requirement to advance Puerto Rico towards a new paradigm for economic and social development. Higher education can position itself to contribute in a leading way to address these remarkable and unprecedented challenges in the history of Puerto Rico. Puerto Rico can capitalize on its entrepreneurial spirit, tax incentives, natural resources, and geography to make it an attractive launching pad for opportunity and innovation.

This approach includes placing Puerto Rico in a competitive condition within the global economy. This requires local leadership to integrate into its plan for recovery the concept of "globalization" which is based on the integration of global and local political economic factors into a strategy for development and change. (Swyngedouw, 1997)

There are untapped opportunities for investments in tourism, agriculture, emerging industries, pharma and federally regulated ventures. There are also new opportunities for carving a vision for development that focuses on people and place strategies. These can be grounded on reciprocal and well aligned multisector partnerships with higher education at the forefront as the engine for knowledge creation and knowledge transfer.

The sustainability of the higher education system as a valuable sector for the country is tied to the survival of the economy. The University of Puerto Rico still is regarded as one of the best in the Western Hemisphere with a ranking of 33 from the SCIMAGO Institute Ranking and No. 15 in Latin America and the Caribbean. (SCIMAGO Institute, 2017).

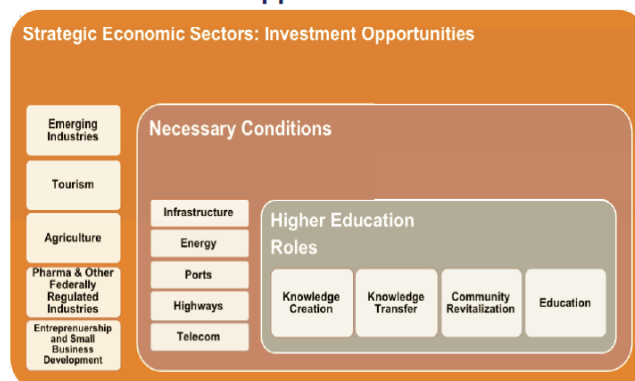
A number of the private institutions, like Interamerican University also ranks well in our region. Therefore, colleges and universities have a determining stake on how Puerto Rico aligns its resources and opportunities to create a new paradigm for development to ignite economic revitalization as a core element in their missions.

The level of multidisciplinary inherent in higher education institutions and the rich talent of faculty and students create the necessary mix and match of assets and brainpower to engage private and public sectors to innovate and create opportunities. This vision is absolutely essential to create economic revival and attract private investment. There are four core areas of endeavor for higher education. (Shaffer & Wright, 2010)

Core areas for Higher Education

Knowledge Creation <ul style="list-style-type: none"> • New Technologies • New Processes • New Products • New Ideas 	Knowledge Transfer <ul style="list-style-type: none"> • Worker Training • Management Coaching • Incubation of Start-ups • New/Targeted Academic Programs
Community Revitalization <ul style="list-style-type: none"> • Local Investments • Cultivation of Third Sector and Non-Profits • Infrastructure, employment and business development 	Education <ul style="list-style-type: none"> • Undergraduate and Graduate Programs • K-12 Pipeline Development • Career Training • Workforce Training

Higher Education and Economic Investment Opportunities



Core areas for higher education

Core areas include: knowledge creation, knowledge transfer, community revitalization, and education, to set the context for redefining the role of higher education in propelling a new economic model for Puerto Rico and provide the foundation for the recommendations provided below.

The conceptual growth plan anchoring this report focuses on 4 strategic economic sectors—tourism, agriculture, manufacturing, and selected services. The Higher Education sector depends on the viability for developing these strategic economic sectors and the feasibility for such development depends on how well the Higher Education sector connects with them.

Higher education and economic investment opportunities

Innovation and the capacity to connect new ideas to practice is at the core of the work of higher education institutions and is the key for a thriving economic model. Puerto Rico's economic, social and political conditions have

changed. We need an economic model based on global competitiveness and collaboration. Therefore, new solutions are needed to meet an entirely new set of challenges and capitalize on new opportunities that can be created through innovation and people/place-based strategies. With this contextual setting, the following are essential opportunities to re-envision the higher education system in Puerto Rico.

1) Puerto Rico Higher Education System can anchor community development through people and place-based strategies.

As anchor institutions, universities have the capacity and capital to rebuild adjacent communities through investments in education, its workforce, real estate and the physical landscape.

Universities are hubs for learning and social engagement for local residents and businesses that build social capital and connect people to the mainstream society. Faculty and students can work directly with communities on asset-based projects to benefit the residents and neighborhoods, through transforming community spaces into businesses, repurpose communities and educational corridors.

In cities and towns where universities are located throughout the island, the university leaders, faculty, and students can take an active role in uniting residents in shared meaning, learning and dialogue about the future of their communities.

University personnel can serve as facilitators of knowledge to elicit and implement ideas that move the community forward, particularly around rebuilding a pre-K-12 education system aligned with Higher Education,

improving value of property, real estate development and developing sustainable systems of energy and water utilization, and identifying methods for small business development and microenterprises.

For example, in Camden, New Jersey, Dr. Gloria Bonilla-Santiago, a Distinguished Professor in Public Policy and Administration at Rutgers University, organized parents, local businesses, local community organizations, university administrators, and New Jersey state legislators to envision and create a new University and Community School Social Enterprise model in the mid-1990s to upend the status quo in urban public education.

The planning group formed LEAP Academy (Leadership, Education, and Partnership Inc.), as a cradle to college public school that families could attend throughout their entire schooling trajectory, starting as infants and toddlers, followed by pre-K, K-12, and then into college, all along an educational corridor in Downtown Camden. The targeted STEM College Access curriculum, Early College, Fabrication Lab for innovation and microenterprise, Parent Engagement and Family Support, and Health and Wellness programs provide a comprehensive and holistic approach to public education that prepares students and their families for college and careers. (Bonilla-Santiago, 2014)

Dr. Santiago received an initial planning grant from the Delaware River Port Authority in 1992 for \$1.5 million to organize parents and the community to envision and plan the new school. Over 25 years, she has been able to fundraise over \$100 million from public and private sources to create state-of-the art buildings and endowment funds for college scholarships.

2) Universities as a place for access, affordability, quality, accountability, and innovation.

Higher education enrollment outcomes in Puerto Rico reflect poorly on the education investment that has already been made. Because increased demand for higher education has not been matched by increased levels of funding, the quality of higher education in Puerto Rico has been compromised. Higher education systems in Puerto Rico are in need of renewal and its resources need to be strengthened and aligned to the current economic needs of Puerto Rico as well as to the demands from the global community.

The system needs to be structured to capitalize on the diversity of strengths of the various institutions both public and private. A Higher Education Consortium should be in place to facilitate this process. Puerto Rico needs to adopt a new strategic, targeted and differentiated approach to increase enrollment at all levels of the higher education pipeline – undergraduate as well as postgraduate study. It needs to strengthen the quality of teaching and learning in higher education institutions by increasing the qualifications of faculty, producing at least double the number of masters and doctoral graduates, and retaining the best talent within the universities.

A new vision for the higher education sector needs to address two key elements: the first is to strengthen governance, leadership and management, and introduce management information systems to improve the effectiveness of higher education planning and expenditure; and, the second is to strengthen scholarship through interdisciplinary practice and collaboration for innovation. Tuition costs for

the public university need revision and adjustment. For the academic year 2016-2017, the average tuition costs for University of Puerto Rico (UPR) is \$2,537 for instate and \$4,372 for out-of-state students.

Undergraduate & graduate costs for attending a university in PR

Description	Puerto Rico			
	Undergraduate		Graduate	
	In-State	Out-of-State	In-State	Out-of-State
Tuition & Fees p/p	\$2,537	\$4,372	\$4,053	\$6,404
Books & Supplies	\$1,234		\$1,234	
Room & Board	\$9,724			
Description	United States			
	Undergraduate		Graduate	
	In-State	Out-of-State	In-State	Out-of-State
Tuition & Fees p/p	\$9,970	\$14,620	\$25,620	\$34,740
Books & Supplies	\$1,168		\$1,250	
Room & Board	\$10,800			

The average cost of tuition and fees for the 2016– 2017 school year in the US is \$9,970 for in-state residents at public colleges, and \$14,620 for outof-state residents attending public universities. Compared with 2013, university costs have declined for in-state and out-of-state students, but the lowered costs affect the universities' ability to receive enough revenue to operate with enough capital.

PR in-state and out-of-state tuition comparisons

4 Years	Public schools undergraduate tuition	
	In-State	Out-of-State
2013	\$3,022	\$4,908
2014	\$2,503	\$4,392
2015	\$2,480	\$4,193
2016	\$2,486	\$4,398
2017	\$2,537	\$4,372

Source: National Center for Education Statistics, College Board, 2017

The concept of internationalizing academia should be a strategic element to raise the level of talent as well as income. This can be done by promoting, marketing and aggressively recruiting international students to come study in Puerto Rico. These students pay a higher tuition rate and cover their costs. Further, partnerships with universities in the US and other countries should be forged to allow for joint academic offerings.

This is a strategy that institutions of higher education in the US and the United Kingdom are implementing. Universities are investing in a concerted effort to attract international students as a strategy to increase revenues, as well as enriching the academic experiences and attract talent for the country. (Universities of UK, 2014)

At the core of these strategies is the crafting of a growth strategy that is inclusive of international student participation in higher education and a marketing effort that sends a consistent message that Puerto Rico welcomes international students, as well as the development of post-study work opportunities for international student graduates. In the United States, efforts to attract international studies are also part of the growth strategy for higher education institutions.

A review of participation patterns of international students in US universities shows that close to half (44 percent) of international students in 2014-2015 were in a STEM field, particularly on five fields of study—math and computer science (24 percent), engineering (16 percent), agriculture (15 percent), intensive English (13 percent), and fine and applied arts (11 percent).

During the same period, international students contributed more than \$30.5 billion to the US economy. These are academic areas for which Puerto Rico institutions have strong foundations and there are affiliated research centers. Therefore, these should be areas of focus for attracting more students from foreign countries. (Zong & Batalova, 2016; Ruiz, 2014)

The University of Puerto Rico should offer scholarships to assist the neediest students and cultivate the best talent. However, scholarships should be accompanied by a requirement for students to remain working in Puerto Rico for at least five years.

This is a common practice in many public universities all over the world. For example, Paraguay offers scholarships for students with the caveat that they stay working in the country for a period of time after university studies are completed.

3) Universities as partners with choice K-12 Schools.

Higher education can be a catalyst for transforming the way in which preK-12 education is delivered in Puerto Rico in a variety of ways, including: working with the Department of Education in restructuring and decentralizing the department, governance and structure of schools.

The recent call by Governor Ricardo Rossello to establish K-12 charter public schools on the island is a promising initiative to decentralize bureaucracy and establish greater opportunities for families to have a choice in a better-quality education system for their children.

4) Education and Infrastructure.

This must be done in alignment with the Higher Education system to shape and link the new school infrastructure to higher education standards with early learning and K-12 pathways to ensure students are prepared for higher learning and the workforce. The university must utilize its intellectual and Human Capital to redesign and uplift communities in distress due to crises like Maria.

Higher education and secondary education have an obligation to ensure that children have a clear path to college beginning in the stages of early childhood development. With human, social, political, and physical capital, universities can garner influence and resources to affect systems of education for children and families in all of the years of schooling.

The university needs an educated pool of applicants. It must ensure that students are prepared for the college level experience through intentional, targeted college access, and readiness programs, beginning as early as possible. In order to secure the future of higher education in Puerto Rico, universities must ensure that the pipeline of early learning to college is readily flowing.

Higher education is also an important resource in transforming teachers and school leadership preparation. Teachers and principals are at the core of good schooling and hold the keys for transferring teaching and learning. Puerto Rico has an opportunity to adopting programs that place education students in classrooms as part of the required teaching clinical experiences under the supervision of talented faculty and outstanding teacher mentors. Teacher Residencies like the Boston Residencies could serve as models for replication.

5) University as incubators of innovation and startup capital

Higher Education institutions can play a paramount role in advancing innovation through new technologies, new processes, new products, and new ideas that can be catalysts for rebuilding the local economy and for connecting Puerto Rico to the global economy.

University faculty and talented students can leverage their strengths in knowledge creation to generate economic benefits. Attracting transfers and two-year students is critical. Innovation is happening much fastest in the outside world and universities are largely struggling to keep up. The higher education sector can support the private sector through knowledge transfer that is deployed through worker training, capacity building for management, help in incubating startup businesses and development of industrial parks and small business incubators.

The University needs to welcome innovators and entrepreneurs into co-working spaces where they can connect on ideas, build business plans, and access startup capital to implement their projects. Universities can embrace models of university innovation centers, like Pennovation at the University of Pennsylvania or Cornell Tech at Cornell University, where tracts of land and old factory spaces have become tech centers of incubators for new businesses and technology.

With open spaces indoors and outdoors, creative minds unite to design solutions to the challenges of our times, including poverty and climate change. Firms and individuals interested in investing in startup companies should be incentivized to provide funds for these innovations to test, implement, and scale.

The conditions are conducive for a larger increase in startup businesses and opportunities that universities can support through physical and financial means. The innovation centers offer employment opportunities as well for local retail, food, and services.

There are a number of initiatives already in place that should be sustained and expanded. The Puerto Rico Science, Technology, and Research Trust is a leader in fostering startup companies, entrepreneurial endeavors, and groundbreaking scientific research throughout Puerto Rico and the Caribbean, with a vast network of partnerships and access to capital.

It has formalized partnerships with some universities but could expand its resources to undergraduate and graduate students for channeling a pipeline of talent directly from the university. Further expansion into the university ecosystem can open doors and new avenues for student and faculty ingenuity and creativity that will drive the science and technology agenda on the island.

The Puerto Rico Techno Economic Corridor on the West Coast of the island partners with the universities there to build opportunities for business and technology incubation. Capitalizing and investing in these resources is paramount to building a culture of innovation on the island to develop, test, and implement new ideas to create new businesses, sources of wealth and to solve social problems in education, health, and the environment.

6) Universities as research enterprises

Higher education is equipped with the talent and research prowess that is necessary to incubate new knowledge. Since innovation begins with research, how universities secure the resources and develop the conditions and

mechanisms to engage its best faculty in purposeful research that leads to business development is fundamental.

Higher education should partner with government and the private sector in Puerto Rico to create business clusters, industrial parks, and build on the concept of “knowledge economies”. Four areas of development are at the core of facilitating this transformative change in the role of the university: 1) attracting and retaining a cadre of talented and prominent faculty; 2) engaging university leadership that can think “outside the box” to conceive a university as an anchor for building the future trajectory of the country; 3) the physical infrastructure needed for research and development, such as labs, research parks, and classrooms; and 4) flexibility to facilitative an environment that frees up the university to commercialize research outcomes.

This approach needs to encompass collaboration among all institutions of higher education and therefore, a country-wide mechanism for collaboration and sharing needs to be in place. The Research Triangle Park in North Carolina is one of the leading factors driving North Carolina’s economy. It was founded by three universities – NC State, Duke and University of North Carolina at Chapel Hill as an effort to promote education, research and industry collaboration.

Today, this joint effort is the largest research park in the United States and serves as a case study for how to tap on universities as a propellant of jobs and new industries that are aligned to the state’s economy. Closely affiliated is North Carolina’s Centennial Campus located within the NC State Campus and offering a mix of services, including academic classrooms, labs and classrooms along with space for corporate and government tenants, residential and food

service facilities, a lake, a golf course and a middle public school.

This innovative university-based effort has attracted a number of corporations, including: RedHat, MeadWestvaco, Juniper Networks and Pathfinder Pharmaceuticals. Georgia also offers a good model with the formation of the Georgia Research Alliance (GRA). The alliance was spearheaded by the Governor and was launched as a strategy to retain industry in the state and attract new investments.

The GRA was formed as a non-profit corporation and its Board include the university presidents of the six major institutions of higher education along with industry leaders. A staple of this effort was the Eminent Scholars Program which set the foundation for attracting renowned entrepreneurial researchers to the state to lead research and development projects and attract students to the university.

The key factor in these examples is that government intervened directly to leverage their creation and the universities incorporated them into their growth strategy.

7) Universities as networks of technology and distance learning

Given the decline in human capital from universities both prior to and after Hurricane Maria, universities should invest in technological infrastructure that capitalizes and utilizes cloud computing and networks that allow students and faculty from different campuses, states, and global sites to connect with each other digitally.

Since Puerto Rico is isolated geographically, distance learning becomes an opportunity for other Latin American Spanish countries and Caribbean islands to compete for

students in Latin American Spanish countries and Caribbean islands. In addition, public transportation is also a hindrance for local students to travel throughout the island, new opportunities for distance learning can be leveraged.

Faculty from one campus could project their lectures to students at other campuses. This allows greater access of expert knowledge and information across a wider swath of the population. Faculty and students can collaborate on projects together throughout the island to share resources and build coalitions for stronger advocacy programs to change public and economic policy that will improve their social conditions.

The Ana G. Mendez University Online program is the first online distance learning program in Puerto Rico with Master Courses in Human Resources, Agribusiness, and Marketing Sales in Management, amongst others. The InterAmerican University has a plethora of online programs as well in Computer Science and Business. While online programs are beneficial for students with limited time and resources to attend full time and in person programs, universities can boost their levels of technological access, generate source of income to advance collaboration amongst students throughout the world.

There is plethora of good models for launching this kind of effort. New York's Excelsior College is a pioneer in distance learning catering to adult learners with a combination of online courses and small learning centers across the state. Western Governors University operates as a total online virtual university and attracts mid-age adults.

The University system of Georgia offers a program called "Intellectual Capital

Partnership”, which functions like a traditional community college-based job training program with a focus on more specialized needs and on for credit college level training. They work with employers in crafting their offerings with the cost for learning shared between the employer and the state.

Universities can foster a network infrastructure that harnesses new technologies in cloud computing and digital learning that sparks new opportunities for students and faculty to work together virtually to conduct research, design new products, and challenge public policy. After Hurricane Maria, the University of Sagrado Corazon employed Dynamic Campus, a Texasbased company, to rebuild its tech infrastructure from cables on the ground to cloud computing to store academic and financial management systems so that students could return to classes immediately. (Schaffhausser, 2017)

This action highlights new investment opportunities for cloud computing so universities, and other institutions, can withstand large scale damages from future natural disasters, and offer cheaper, and more protected administrative and management systems.

8) Universities as global centers of excellence.

Colleges and universities are important assets that can help Puerto Rico actively participate in the knowledge economy. One way the Island can build on these assets is to foster partnerships between private industry and higher-education institutions.

These partnerships tend to offer localized economic benefits by increasing economic activity associated with the creation,

development, and commercialization of new products or processes.

The mission is for the government of Puerto Rico, along with the university and non-profit sector, to establish a center of excellence focusing on the development of globally important technologies by providing seed funding and incentivizing industry investment. Major companies have invested in universities throughout the United States to develop product development and research centers to design, test, and implement new technologies. For example, Boeing and Caltech have research agreements to partner on aviation technologies that are jointly patented. Siemens contracts with the University of Tennessee to develop new medical imaging scintillators and scanning tools.

Procter and Gamble built a simulation center at the University of Cincinnati for advancing product and process development (UIDP, 2013). These examples demonstrate new opportunities for businesses invested in research and development to establish a foundational research location within a university setting to improve their market appeal to mass audiences. These programs require almost \$1 million annually to fund the facilities, personnel, and equipment for the operations.

9) Universities as workforce development centers.

The higher education sector must be able to adapt and customize its educational range to the needs of the country. Employers are increasingly warning of widening gaps between skills that are in demand and those that are available, highlighting a need to foster more technical talent if countries want to remain competitive.

There is a considerable skills mismatch between university graduates and the needs of employers in most economies. Without adequate modifications to education and training systems, the gap between supply and demand is projected to grow significantly. To address this, it will be critical to re-align global talent pipelines with market demand. (WEF, 2017) Universities need to assess their teaching and learning focus and priorities to ensure that they can align the role of knowledge creation through research and technology transfer with that of knowledge transfer through education and human resource development. Workforce development is crucial and in the spirit of developing a cohesive higher education sector, the role of the junior colleges need to be revisited as they should play an important role in training and developing 2-year programs that lead to certificates and that prepare students to enter the workforce.

Academic program development needs to be aligned to the needs of industry and business to ensure that training leads to jobs and that companies can get the human capital that is necessary to thrive and be competitive in the business sector. Training programs should be consolidated into a single entity to ensure alignment and usefulness. One example comes from Georgia Tech and its Enterprise Innovation Institute.

10) Universities as generators of revenue and capital.

The best universities depend on more than just students for their revenue. They develop endowments, chairs, contracts, patents, and products.

Over the past five years, the Puerto Rico Science, Technology, and Research Trust, in

partnership with the University of Puerto Rico, and the PR Department of Economic Development (DDEC by its Spanish acronym) managed to have 20 patents for the UPR with another 41 applications in process.

Though encouraging, these results are not enough. Consider that MIT University has currently licensed 49% of its 2,728 issued US patents to third parties and 32% of its pending US patents. MIT ranks #2 in the 2017 Reuter Report of the Top 100 world most innovative universities. The potential is there for the taking but it must be an agile system.

Universities in the Island need to cultivate and attract new sources of revenue, donors, and innovations to be able to generate new income to become self-sufficient. They need to be growing and diversifying their revenue. The future of universities depends of its ability to replicate and sustain themselves throughout history. The role of the Boards of Governors must focus on putting together an action plan for fundraising and controlling administrative spending. Trustees have a unique vantage point and responsibility to investigate cost and compare them against similar or peer institutions. They need to increase financial transparency, invest and allocate scarce resources responsibly in a highly competitive education landscape.

Moving forward.

Puerto Rico's higher education system needs to make strategic choices about what and who they want to be and serve, what to provide, who to partner with, and how much to change. The outcome of these choices will lead to greater recognition from community, donors, employers, and students. ■

REFERENCES

- Bonilla-Santiago, G. (2014). *Miracle on Cooper Street, Lessons from an Inner City*: Archway Publishing.
- Ruiz, Neil G. (2014). *The Geography of Foreign Students in U.S. Higher Education: Origins and Destinations*. Washington, DC: The Brookings Institution
- Schaffhauser11/16/17, D. (2017). After Hurricane Maria, Puerto Rico University Turns to the Cloud to Restore Student Services. Retrieved February 2018
- Shaffer, David F. & Wright, David J. (2010). A New paradigm for Economic Development: How Higher Education Institutions Are Working to Revitalize Their Regional and State Economies. The Nelson Rockefeller Institute of Government, University of Albany.
- Swyngedouw, E. (1997). Neither global nor local: “Globalization” and the politics of scale. In K. R. Cox (Ed.), *Spaces of globalization: Reassessing the power of the local* (pp. 137–166). New York, NY: Guilford Press.
- The University Industry Demonstration Partnership. (2013). *Case Studies in U-I Collaboration* | Publications.
- Universities of UK (2014). International students in higher education: the UK and its competition. <http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2014/international-students-in-highereducation.pdf>
- World Economic Forum (2017). *Education, Gender, and Work*
- Zong, J. and Batalava, J. (2014). *International Students in the United States*. Migration Policy Institute (MPI).

A Partnership for the Empowerment of Future Leaders Generations in the Re-building of Communities and Neighborhoods

By Dennis R. Román Roa, PhD

The Centro Para Puerto Rico of the Sila M. Calderón Foundation, is a non-for-profit organization for education, dialogue, research and advocacy efforts located in San Juan, Puerto Rico. As part of our own development we have always pursue to develop effective and high impact collaborations around our mission.

As for most of the non-for-profit organizations in Puerto Rico, resources are limited and collaborating with others can help to extend the impact of our actions. After the adversities created by hurricanes Irma and María, our sector has sensed the need to collaborate in the rebuilding of our communities and neighborhoods. Our organization did not think twice to align our resources in that direction. At the Centro, our mission has been to reduce poverty and inequality while advancing the role of women in society. We also promote initiatives of economic, social and urban development that foster individuals' capacity building and transformation. The conditions after the hurricanes were certainly an opportunity to come back to those roots.

When an organization like ours decide to engage in fighting poverty and inequality, we must make choices as to which intervention mechanism should be used to achieve the greatest impact. Since our beginnings, community development and entrepreneurship have been our two most notable interventional themes. Entrepreneurship, because just by

transforming the mindset, incredible advances are achieved in reducing dependency, as an attitude of self-management and empowerment is developed in the participants. And community development, as a mechanism to engage community residents in the solutions of their problems and as a tool for their own economic growth.

Both, from a more philosophical point of view, are better than just taking care of an immediate need by providing a charitable aid, which will in many cases just add to the continuation of dependency. However, when a major event such a natural disaster occurs, most organizations have to certainly support those in need and provide relief, leaving our regular duties aside, at least temporarily.

After hurricanes Irma and María, the Center for Puerto Rico was no exception. We had to maneuver around our mission. As a result, the Center distributed food and water, assisted with FEMA applications, supported the installation of blue tarps, distributed water filtration systems and solar lamps, provided psychological counseling and even awarded monetary grants to rebuild microbusinesses in communities around Puerto Rico, among many other activities.

One aspect that became evident during the emergency was the re-emergence of the concept of community and how communities and non-for-profit organizations around Puerto Rico got organized to support municipal governments in the recovery, assuming roles

the government was not capable to do during the emergency. There were many stories of communities organized to help restore the electricity in remote areas in the central region of Puerto Rico and NGO's acting as first responders to save lives and provide humanitarian support beyond their original mission. All this, just a small sample of the power of the community and the collaboration of many NGO's who certainly want to be a part in the new Puerto Rico. Now we are rebuilding and maneuvering around our mission to stay relevant in a new scenario.

At the Centro, we have always strived to attack the poverty and inequality problem in a more systemic way, which call for the attention of different stakeholders and different dimensions. Fighting poverty and inequality is a monumental task that can't be done without the involvement of other collaborators, especially after Irma and María. These conditions and the many challenges Puerto Rico is currently facing call for a new breed of leaders and change agents. If within the spirit of some collaborations, there is an opportunity to develop more change agents, organizations like ours should pursue it as well.

For years, the *Community Leadership Center* Director, Dr. Gloria Bonilla, has maintained close collaboration ties with the Sila M. Calderón Foundation and the Centro Para Puerto Rico. This relationship has gone in line with the University Strategic Plan, which calls for academic scholarship that can address issues of inclusion, social justice and community development within the framework

of scholars' engagement, academic differentiation and experimental learning.

We have seen not only what the *Community Leadership Center* impact in Camden has been but how Rutgers has also promoted the bridging of community development projects with the creation and sustainability of new academic programs. To have the opportunity to bring part of that to Puerto Rico in the form of a collaboration with the *CLC, Rutgers University and the Centro Para Puerto Rico*, was an opportunity we could not miss.

As a result, high quality interdisciplinary graduate and professional programs has been offered by Rutgers in Puerto Rico at the Center. Young public service professionals have benefited from the opportunity of getting top notch educational programs, without leaving the Island and at affordable tuitions rates, covered in most cases by grants provided by the Senate of Puerto Rico, other Puerto Rico Governmental Agencies and many Private Institutions.

Two programs were developed and offered under the leadership of Dr. Gloria Bonilla Santiago: A graduate Certificate Program in Community Development and the Master in Public Administration. Both programs address critical societal needs by training emerging leaders to become effective ethical agents for community development in neighborhoods around the Island. These programs were customized to provide a solid theoretical context for community development, while also building the skills repertoire of emerging leaders looking to

expand their knowledge and practical competencies, dealing in class with the problems Puerto Rico is facing today.

The program has graduated 15 students from the *Executive Master in Public Administration* Program and other 25 from the *Certificate in Community Development*. Another group will be graduating in the upcoming months. The approach of hybrid teaching using online options, video conferences, intensive seminars, exchanges with Rutgers faculty teaching alongside local faculty experts in Puerto Rico, has given these students an extraordinary educational experience with the adequate balance between global and local perspectives.

One of the most important features of the program were the local projects developed by the students as part of the completion requirements which targeted areas such as: housing, youth development, environmental impact and advocacy, among many others.

This is certainly a beginning, and there is no doubt in our minds that this has meant a lot, not just for the students, but for all of us at the Centro para Puerto Rico in our quest to fight poverty and inequality assisting people to find their way out of it, following principles of self-management and empowerment. We believe that by following this approach, progress is achievable and above everything, sustainable one person at a time.

No hurricane, and no economic crisis will take what people have learned through capacity building and education. This type of collaboration change lives in Puerto Rico while preparing leaders to be part of our recover

efforts. New leaders working at the hearts of the communities, while many more citizens engage in sustainable entrepreneurial projects capable of driving economic development from the bottom up.

At the Sila M. Calderón Foundation and the Centro Para Puerto Rico we are very proud of what we have done. Not just at our own communities, but with the support of partners such as the *Community Leadership Center and Rutgers University*. Working together we can build a new Puerto Rico regardless of the challenges lying ahead.

Community Development and Social Equity in Cuba: Achievements and Perspectivesⁱ

Maria del Carmen Zabala Arguelles

The purpose of this work is to present the experiences and perspectives of Cuba regarding community development and the promotion of social equity at the local/community level. First, we present the trends that have characterized community development in Cuba throughout the last few decades; then we touch on those related to theoretical and methodological references that support these practices, and we end with some experiences related to community development: Comprehensive Neighborhood Transformation Workshops, the Havana Historian's Office and experiences by the Cuban Program of the Latin American Faculty of Social Sciencesⁱⁱ.

Brief Notes on Community Development in Cuba

Communities have had an important role, both as a support system and a leader in executing several different programs, campaigns, mobilizations, and social tasks in Cuba since the Revolution triumphed in 1959. Starting with the economic crisis triggered in the nineties, the importance of this scenario has been rescaled, as a result of the limitations to main resources when solving problems and of the increase in population and activities that take place in that area; two important events took place that are consistent with this reality: the creation of Popular Councils (1992), local government bodies that coordinate and integrate community actions and organizations, and the establishment of the Departmental Group for Cuban Community Work (1996), whose aim was to strengthen collaboration between community organizations and entities.

From then until now, community development in Cuba has been characterized by its revitalization, diversity and wealth of experiences according to its purposes and

methods, the plurality of players and social structures involved in them, and the coexistence of tendencies that reveal different levels of social participation, all within a scenario of increasing social complexity. But the crisis and economic reform that took place in the nineties also had damaging effects on Cuban society, among them the decay of quality of life of the population, the increase of several different social problems, processes of socioeconomic restratification and the reemergence of social inequality, which are all clearly reflected in the communities.

At the start of this century, a broad array of social programs were launched with strategic aims at social development--in the fields of health, food, education, culture, employment and social security, and their goal was to deal directly and personally with problems that had gotten worse throughout the most serious years of the economic crisis. In this sense, new players emerged onto the community scene: emerging teachers, art instructors, social workers, municipal university campuses, among others, which articulated to a lesser or greater extent the experiences with community development that existed previously.

The most recent moment, which is referred to as the "process of updating the Cuban economic model," has focused its interest also on the local-community level. In the Guidelines for the Economic and Social Policy of the Party and the Revolution, sanctioned in 2011, the need to strengthen local participatory management in the territories stands out as a way to solve different problems in the country, and to ratify the principle of equity as an essential pillar of the Cuban social model; this implies that a focus on equity must be included in the agendas of local development.

Although vast experience is gained from community development and current policies are now favoring decentralization processes more, there are still tendencies that limit community development, including the disconnect between social and institutional programs developed simultaneously in communities, poor coordination among players due to the prevalence of a sectoral focus, the persistence of a centralist and top-down culture, the limited systematization and evaluation of community development experiences; in addition to the lack of focus on equity in local development agendas.

At the same time, Cuba possesses many strengths to boost community work: the basis of the Cuban social project--among them, equity and social justice; the social participation of the people; the human capital created throughout several decades; the existing social capital in communities made up of social organizations, different institutions, local governments, municipal universities, among others; government support in the activities and needs of the territories; the existing cultural identity and traditions in these areas; and the solidarity that as an ethical and practical principle sustains daily life in the communities.

Using these strengths and local prospects would allow for an increase of the impact capability of the community in reducing existing social concerns.

Theoretical-Methodological Models

There are many theoretical-methodological models that support the practice of community development in Cuba. Among the most important are: Research-Action-Participation, Popular Education, Community Psychology, Sociocultural Animation, Strategic Community Planning, Sustainable Development and Local Community Development; paradigms focused on participation are those that undoubtedly have had the greatest impact in Cuba, which

have been adopted effectively by several community projects and organizations.

Popular Education accepts dialogue and participation as indispensable for the emergence of a new popular subject, highlights the learning dialogue and the value of popular knowledge, placing participation at the foundation of learning and the group as its preferential site. Among its main gnoseological principles are the social construct of knowledge and the dialectic unity between action-reflection-action.

Its pedagogical principles are collective, dialogic and symmetrical learning, the value of popular knowledge, participation as the foundation for learning (the process of sharing knowledge), respect and acceptance of “other knowledge,” the group as an area for learning, education based on a critical analysis of practice (problem-posing of reality) and education as an instrument for equality, social justice and wellbeing.

Among the political principles are participation and dialogue, the socialization of power, inclusion and justice, popular prominence and a culture of emancipation.ⁱⁱⁱ

In Cuba, the Martin Luther King Jr. Center has developed basic courses from popular educators, whose graduates make up the Network of Popular Educators, and accompanies experiences of community development in different cities throughout the country.

Research-Action-Participation [*Investigación – Acción – Participación*] (IAP) shares the purpose of social transformation with Popular Education and is characterized by its endogenous, collective, and participative nature, and by the researcher's position as a committed participant. Countless experiences of social transformation in communities are achieved by this paradigm, and many of them have been advised by universities and municipal university centers.

Overall, the contributions obtained by these theoretical-methodological models are

social, holistic and comprehensive transformation, participation -collective prominence, commitment, empowerment,- democratic horizontality, collective building of knowledge, critical reflection of practice, player articulation (sectoral, territorial, institutional), missions of social justice, inclusion, wellbeing, human and sustainable development.

Some Experiences of Community Development in Cuba

Consistent with the above regarding revitalization, diversity and the wealth of community development in Cuba, this section will briefly discuss the experiences with Comprehensive Neighborhood Transformation Workshops [*Talleres de Transformación Integral de Barrios*] (TTIB), the Havana Historian's Office [Oficina del Historiador de la Ciudad de la Habana] and the Cuban Program of the Latin American Social Sciences Faculty [*Programa Cuba de la Facultad Latinoamericana de Ciencias Sociales*] (FLACSO).

The Comprehensive Neighborhood Transformation Workshops^{iv} are multidisciplinary teams who have among their action points the improving of habitat conditions, child and adolescent urban education, the strengthening of community identity and a sense of belonging, reclaiming traditions, developing the local economy, conserving and protecting the environment, developing urban agriculture, and developing social prevention with specific demographics, among others.

The TTIB prepare strategic community plans, a methodology that includes an assessment, mission, strategic goals, an action plan, oversight and evaluation. Based on a participatory appraisal, residents identify the problems that affect them and define their priorities, the community resources needed for a solution and the necessary strategies and actions.

The workshops also manage local and community development projects, perform community work, coordinating, articulating, and mediating efforts between local players and area social institutions, social communication and advise on local government activities.

The City of Havana Historian's Office^v is an institutional organization that manages the restoration, revitalization, and protection of the Havana Historic City Center. It has a methodological management body, information, control and coordination, which is the Master plan for Comprehensive Revitalization of the Old Havana, which develops well-defined policies, strategies, and plans.

The City of Havana Historian's Office develops a broad collection of programs to benefit residents of the Historic City Center and to preserve its cultural and historic heritage. Notable among these are the array of social projects aimed at meeting the pressing needs of the people, especially those of the most vulnerable social groups, such as the housing restoration and construction program; the "Classrooms in Museums" project to improve environmental conditions in elementary schools; socio-cultural programs for children and adolescents in school centers, libraries and museums; teaching adolescents to become tradesmen so they can get involved in restoring architectonic heritage; care for pregnant women, the elderly, children with motor skills problems, in specialized institutions, among others.

The work of the Historian's Office combines territorial planning, social intervention, a self-management system that allows for the funds obtained throughout the territory, mainly through tourism, to be invested in its development, both in social works, and restoring homes, and it also allows the creation of jobs, which are a prioritized for the area residents.

It is easy to appreciate the complexity of this scenario, not only with regard to its current capabilities, resources and problems, but also because several different social players interact and multiple programs and actions are developed, combining territorial planning, social intervention, self-management and community participation.

Both experiences, the Comprehensive Neighborhood Transformation Workshops and the Historian's Office, have carried out specific actions to serve disadvantaged groups or those in a situation of poverty. This validates the idea that communities in Cuban society are a privileged area who serve parts of the population who live in unfavorable socioeconomic conditions, taking into account available human resources, the absence of social exclusion, existing social capital, and the prevailing values of social justice and solidarity in the society.^{vi}

The Cuban Program of Latin American Social Sciences Faculty [*Programa Cuba de la Facultad Latinoamericana de Ciencias Sociales*] (FLACSO), affiliated with the University of Havana, also collects experiences in community development. This experience has materialized in counseling and training of the specialists at the Comprehensive Neighborhood Transformation Workshops, academic programs associated with the Master's Degree Program in Social Development, courses and workshops in community development to many different players, advising on community programs for socially-disadvantaged children, and community projects for the social inclusion of disabled people.

In the last few years, several different actions have been taken to strengthen social equity in communities, starting with a project, the purpose of which is to encourage innovative management processes for local development in order to strengthen social equity through training, backing, promoting and spreading experiences. The basic

assumptions of this project are equality in human opportunities, impartial treatment of people, emphasis on diversity and social disadvantages, social justice regarding basic rights and real opportunities, all from a multidimensional perspective involving not only rights but also opening doors, distributing resources, wellbeing and accomplishments.

The community programs FLACSO Cuba has joined and that are included in this project has detected visible gaps associated with specific groups, i.e., social classes, gender, age, or generational, racial, territorial; and specific areas, i.e., economic (work/ income/ consumption), housing, habitat, social services and protections, cultural consumption and citizen participation.

That is why participative and contextualized methods and situated knowledge are used; learning activities designed as a continuous educational process are implemented for teachers,^{vii} work done on social networks is given preference and it assumes a focus on intersectionality when analyzing inequalities. This educational focus is also supported by information technologies, highlighting in particular the preparation of multimedia in Social Development and equity, including a bibliography and didactic material on issues on equity.

Another important part of the project is the development of methodological tools for the community's social players, which highlight the preparation and validation of a methodological guide to overseeing and evaluating local and community development projects with a focus on equity. The ultimate goal is for community players to be able to diagnose existing situations of equity in their territories, i.e., existing problems, the most affected aspects of equity and the most vulnerable groups, and to design actions and strategies to mitigate these concerns.

In Closing

Community development in Cuba has been continuously revitalized in the last few decades, and reflect a diversity of experiences and theoretical-methodological models, a myriad of players and social structures involved and different types of management and participation. In the growing social diversity that exists today, the greatest challenges involve the necessary

comprehensiveness and holistic nature of these transformations, real participation of the people in these transformations and the creation of agendas for local development that strengthen social equity in the community. ■

REFERENCES

ⁱ This work summarizes the speech entitled “Community Development and Social Equity in Cuba, Achievements and Perspectives,” given by the “Cuban Perspectives on Community Development Building Integrated Approaches to Education, Local Development and Social Equity” panel, presented at the conference “Future Directions for a New Cuba: Building Sustainable Partnerships,” held from November 6-10, 2017 at Rutgers University--Camden.

ⁱⁱ The content presented summarizes and updates some of the issues contained in two articles written by the author: “Las comunidades y el trabajo comunitario en Cuba” [*Communities and Community Work in Cuba*] en: Estudios del Desarrollo Social [*Social Development Studies*]: Cuba y América Latina [*Cuba and Latin America*]. FLACSO Semestral Electronic Magazine, Cuba, Vol. 1, No. 2, 2006 y “Participación y prevención social: una perspectiva desde las comunidades cubanas”, [*Participation and Social Prevention: A Cuban Community Perspective*] en: Cuadernos África-América Latina. Revista de Análisis Sur / Norte para una Cooperación Solidaria. Madrid: Atrapasueños editorial, SODEPAZ, 46 1er Semestre 2009.

ⁱⁱⁱ For further reading into these principles, see: *Qué es la Educación Popular? [What is Popular Education]*, Marta Alejandro, María Isabel Romero y José Ramón Vidal (Comp.), Editorial Caminos, Martin Luther King Jr. Center, La Habana, 2008

^{iv} These workshops arose in 1988 at the recommendation of the Capital Development Group and there are currently a total of 20, which are subordinate to the Municipal People’s Power Assemblies. Regarding the experience from some of these workshops -Atarés and La Guinera - several articles may be read from Roberto Dávalos’ compilation “Desarrollo local y descentralización en el contexto urbano” [Local Development and Decentralization in an Urban Context].

^v The Historian’s Office of the City was founded in 1938 with the purpose of rescuing, protecting and restoring the city’s historic monuments and sites. In the 1981, the government provided funds to bolster its work and in 1993 it received legal backing (Legal Decree 143) to promote self-funded sustainable development. The Historic City Center of Havana was declared a World Heritage in 1982.

^{vi} To expand on this argument, see: *Alternativas de estrategias comunitarias para enfrentar la pobreza [Alternate Community Strategies to Confront Poverty]*, María del Carmen Zabala, in: *Revista Caminos*, Martin Luther King Jr. Memorial Center, 2000.

^{vii} Notable among the issues included in the training process are social development and equity, gender equality, gaps in equality based on skin color, disability or social inclusion, inequalities and age groups, inequalities in education, culture and information.

Cooperatives and Local Development in Cuba: Current Challenges.

Reynaldo Jimenez Guethon

There are no studies in Cuba that suggest cooperatives in agriculture existed prior to 1959. There may have been a few beginnings to a cooperative association, mainly for trading products, but it has not been adequately studied (Matias, 2010). Despite it being known that prior to the success of the Cuban Revolution, there were cooperatives in the transportation sector, albeit with very particular characteristics, they are not considered cooperatives by Cuban cooperativist history.

The Cuban cooperative movement was comprised of three types of cooperatives engaged in agricultural production up until the end of 2012: Cooperativas de Créditos y Servicios [The Credits and Services Cooperatives] (CCS), which arose in the 60s, the Cooperativas de Producción Agropecuaria [Farming Production Cooperatives] (CPA), created in 1976, and the Unidades Básicas de Producción Cooperativa [Basic Production Units Cooperative] (UBPC), established in 1993.

This cooperative movement began right after the triumph of the revolution in 1959. Its origins are based on the democratization of land ownership determined by successive laws of agrarian reform, since cooperativism can only exist as an association of free landowners or usufructuaries; therefore, it was impossible in Cuba prior to 1959, given the high concentration of land ownership and the prevalence of latifundia, since 73% of arable land was concentrated on 9% of the estates (Jimenez, 1996).

The Cuban Revolution acknowledged agricultural cooperativism since the first few years after its victory as a form of collaboration

and to provide advantages in order to modernize farming and as a way to collectively exploit the land (Rodriguez, 1983).

On May 17, 1959 the First Agrarian Reform Law was signed, which delivered land titles to people who worked it and eliminated latifundia that had remained in the hands of the national oligarchy and US imperialism, by limiting ownership of tracts of land to 402 hectares. This law also facilitated the principle that the land was for whomever worked it, eliminating the exploitation that prevailed in the country.

In October 1960 Cane Cooperatives were created on old latifundium lands used to cultivate sugarcane. Through them the State had property rights over the land and the means of production, and the members of the cooperatives lawfully held economic and legal possession of the land.

Members of these Cane Cooperatives were agricultural workers and not small business owners. According to the Cuban economist Blanca Rosa Pampin, there were 621 cane cooperatives in 1960. Their average size was 1409 hectares, with a total of 876,142 hectares dedicated to growing sugarcane (Pampin, 1996). These first Cane Cooperatives only lasted a short period of time (1960-1962). Regarding its organization and operation, severe organizational mistakes and management methods were pointed out at that time.

Farming Societies arose in 1962, which were established based on farmers volunteering to combine their lands, equipment, and animals to collectively use the land. These Farming Societies disappeared in the decade of the 70s of the twentieth century.

According to Carlos Rafael Rodríguez, at that time, the conditions necessary for an energetic development of cooperation between small and medium-sized farmers still did not exist (Rodríguez, 1983).

In the 60s, small farmers began to organize themselves into Farmer Bases to coordinate the distribution of inputs for agricultural production, material resources, to receive centralized loans, etc., and this is how the Credit and Service Cooperatives were created (CCS) (Barrios, 1982).

According to the definition set forth in Article 5, Chapter II of Law No. 95 on Farming Production and Credit and Service Cooperatives of 2002, a CCS is a voluntary association of small farmers who either own or hold in usufruct their respective lands and other means of production, along with the production they obtain. It is a type of agrarian cooperation whereby the technical, financial, and material assistance provided by the State to increase production for small farmers and facilitate trade is arranged and facilitated. It has its own legal capacity and is liable for its actions with its own assets. [Gaceta Oficial de la República de Cuba (Official Gazette of the Republic of Cuba). Article 5, 2002, p. 1406)

The foregoing Law provides the following objectives for the CCS in Article 9:

- To plan, hire, purchase, sell, and use the resources and services necessary for its members and the cooperative in an organized and rational way, based on farming production.
- To manage, apply for, and collaborate in the control, use, and recovery of necessary bank loans for its members

and the cooperative itself used for farming production.

- To plan and sell the government-administered production [producciones directivas] of its members and the cooperative.
- To sell other productions and services authorized in its common purpose.
- To acquire, lease, and collectively use farming and transportation equipment and to build the necessary facilities to improve efficiency in farming production and trade authorized in its common purpose. [Gaceta Oficial de la República de Cuba (Official Gazette of the Republic of Cuba)]. Article 9, 2002, p. 1407)

In 1963, the Second Agrarian Reform Law was enacted, which reduced landholdings to 67 hectares. Larger estates were nationalized, increasing state participation in cane agriculture. The diversification and production also increased, which gave rise to a transformation in cane cooperatives on state-owned farms in charge of supplying the raw material, sugarcane, to the sugar mills.

When celebrating the fifteenth anniversary of the enactment of the First Agrarian Reform Law in 1974, there was evidence of a need to find new and better ways of farming production. It had to be done slowly, progressively, and based on willingness.

These analyses and approaches established the basis for the “Agrarian Hypothesis” and relationships with farmers, which were analyzed, discussed, and approved later on during the first Communist Party Congress in Cuba 1975.

Continuing in the search for new ways of farming production, it was decided in 1976 to create Cooperativas de Producción Agropecuaria [Agricultural Production Cooperatives] (CPA). Article 4, Chapter II of Law No. 95 on Cooperativas de Producción Agropecuarias y de Créditos y Servicios [Agricultural Production and Credits and Services Cooperatives] of 2002 defines a CPA as follows:

The Agricultural Production Cooperative is an economic entity that represents an advanced and efficient way of socialist production with its own legal personality and assets, established with lands and other goods contributed by small farmers, which are comprised of other individuals in order to reach sustainable farming production. [Gaceta Oficial de la República de Cuba (Official Gazette of the Republic of Cuba)]. Article 4, 2002, p. 1406)

Article 8 of the foregoing law establishes the following purposes of CPAs:

- To develop sustainable farming production with economic efficiency based on the interests of the national economy, the community and the cooperative itself,
- To rationally use farming grounds, either owned or held in usufruct by the cooperative and the other farming property and production resources it possesses,
- To gradually increase the quantity and quality of government-administered production and foster its rapid sale
- To develop other farming and forest productions and provide farming services authorized by their common purpose. [Gaceta Oficial de la República de Cuba

(Official Gazette of the Republic of Cuba)] Article 8, 2002, p. 1407)

- At the beginning of the 90s, as a consequence of the fall of the European socialist model and the resurgence of the American blockade of Cuba, there was an immense decline in agricultural production.

Most inputs, spare parts, gas, etc., came from Eastern European countries, mainly Russia. 85% of Cuba's trade was done with these countries.

Cuba lost most of its main suppliers when the European socialist model collapsed, and the availability of production inputs was sharply affected. The current Cuban agricultural production model, which is based on the principles of the "green revolution" consisting of extensive monoculture with an abundant use of machinery and inputs (fertilizers and chemical pesticides), experienced a true crisis.

An example of this was how all activities related to sugar production were affected, which is an industry of significant interest for the Cuban economy, due to the following factors: a lack of fertilizers, a shortage of fuel, a deficit in equipment and replacement parts for irrigation systems, fewer plantings, the need to cut down even the last cane of sugar, the lack of agricultural implements and machinery, the decline of assistance to agricultural producers, the lack of replacement parts, among others.

The year 1993 is considered one of the most difficult periods within the development of the Cuban economy and the wellbeing and health of the Cuban population. The economic crisis was especially hard on the agrarian industry. One of the strategies used to face this situation was the establishment of Unidades Básicas de Producción Cooperativa [Basic Cooperative

Production Units] (UBPC), which represented an important transformation to Cuban agriculture and is considered by many experts on the issue as the third Agrarian Reform Law.

This transformation of property and production relationships in the Cuban agricultural sector was realized when the State Council enacted Decree Law No. 142, which allowed for the conversion of most state-owned farms for the production of sugarcane and other crops into UBPCs (Jimenez, 2006).

In the UBPC General Regulations overseen by the Ministerio del Azúcar [Ministry of Sugar] (MINAZ), Article 1, Chapter 1 of Resolution No. 525 of 2003 tells us what a UBPC is and what its objectives are: it is an economic and social organization comprised of laborers with administrative autonomy. It is part of the production system of a Complejo Agroindustrial azucarero [Sugar Agro-Industrial Complex] (CAI) and constituting one of the main links comprising the productive foundation of the national economy whose main objective is a sustained increase in cane production and sugar content, the rational use of available resources, and the improvement in living and working conditions of its members. (UBPC General Regulations MINAZ, 2003).

According to the resolutions adopted on September 10, 1993 by the Political Bureau, UBPCs are sustained by four basic principles:

1. Uniting man with the area as a way of stimulating his interest in work and his particular sense of individual and collective responsibility.
2. The self-sufficiency of the collective group of laborers and their families with a collaborative effort, and to progressively improve living conditions

and other aspects related to supporting man.

3. Rigorously linking workers' income to attained production.
4. Broadly developing administrative autonomy. The proposed production units must administer their own resources and become self-sufficient in productive order

The creation of these new cooperatives was characterized by:

- They will hold the usufruct on the land for an indefinite period of time
- They will be owners of the production
- They will sell their production to the Government through the Company or as they decide
- They will pay the technical-material insurance
- They will operate bank accounts
- They will buy the fundamental means of production through loans
- They will collectively elect their management, which shall periodically provide an accounting to its members, as is done in Agricultural Production Cooperatives,
- They will comply with all their respective tax obligations as a contribution to the country's general expenses (UBPC General Regulations MINAZ, 2003).

From their inception, UBPCs have been divided into two large groups: those that are dedicated to growing sugarcane; and those that are concentrated in other crops and activities related to livestock. Both groups were overseen

respectively by the Ministerio de la Agricultura [Ministry of Agriculture] (MINAG) and the Ministerio de la Industria Azucarera [Ministry of the Sugar Industry] (MINAZ), which was transformed in 2011, assigning part of its common purpose to the MINAG and then changed its name to AZCUBA, which continued to oversee the country's sugar production.

According to the Oficina Nacional de Estadísticas e Información [National Office of Statistics and Information] (ONEI) cited by Diaz (2005), this process radically changed land distribution in Cuba: if in 1989, 82% of the total surface area and 73% of the agricultural surface area belonged to 385 state-owned companies, in 2000, different types of farming cooperatives occupied 43% of the total surface area and 61.3% of the agricultural surface area. Of those, the UBPCs occupy 28.7% of their total surface area and 40.6% of the agricultural surface (Diaz, 1998). Therefore, the land was transferred over to new social players, among those old agricultural laborers and other people that were not associated with the agrarian sector.

The figures mentioned above eloquently show the extraordinary importance of the cooperative sector in Cuban farming production, not only in reference to food production for internal consumption but also with regard to crops earmarked for agro-exportation.

In this regard, the researcher Nova states that the creation of the three types of cooperatives, CCSs, CPAs, and UBPCs, illustrate an important expression of the country's agricultural policy, confirming the cooperative movement as a fundamental basis upon which the corporate agricultural economic system is erected (Nova 2004).

In Cuba, the process of creating the first cooperatives up until those introduced in 1993

was characterized by material support and monitoring by state institutions, which underlines the existing concern toward human beings who work in these production units. Cooperativas no Agropecuarias [Non-Farming Cooperatives] (CNoA)

In Cuba, the economic and social model sustained by the Economic and Social Policy Guidelines of the Party and the Revolution approved in April 2011 is currently in the process of being modernized.

With the purpose of continuing to modernize the Cuban socioeconomic model and in compliance with the Guidelines approved at the Sixth Cuban Communist Party Congress in April 2011 and specifically the Economic and Social Policy Guidelines of the Party and the Revolution from the 25th to the 29th in November 2012, it was decided that cooperatives in non-farming activities be gradually established, and that provisions of an experimental nature would regulate this process. At the beginning, the experience provided for the creation of around 200 associations of this type throughout the country, which would focus on the transportation, gastronomic, and fishing industries, along with personal and domestic services, the recovery of raw materials, the manufacture of materials, and construction services.

The foregoing modernization pays special attention to the cooperative movement, both within the farming industry and in other sectors of the Cuban economy.

The legal body regulating the development of nonfarming cooperatives is comprised of Decree Laws issued by the State Council No. 305 at 306 of November 15th and 17th, 2012 respectively; Decree No. 309 of the Council of Ministers, on November 28, 2012;

Resolution No. 427/2012 from the Ministry of Finance and Prices and Resolution No. 570/2012 from the Ministry of the Economy and Planning.

Certain characteristics that differentiate the different types of existing cooperatives to the present in the country can be observed:

The Credit and Services Cooperatives (CCS): include the union of farmers who maintain ownership over their land and other work resources.

The Agricultural Production Cooperatives (CPA): include a union of land contributors, farmers, other willing individuals, as well as their machinery, animals, and facilities. These people who hand over their property and other resources become owners of a collective property.

Basic Cooperative Production Units (UBPC): are made up of state workers who unite and become agricultural cooperativists, who receive land and other resources in gratuitous usufruct for an indefinite period of time.

The Non-Farming Cooperatives (CNoA) are characterized by collective ownership. Members of CNoAs maintain ownership of the property they contribute, others work with the resources and property leased by the State without a right of conveyance, and others manage both properties, in accordance with the decisions made by their partners.

One may disagree that the latest type of economic management, the CNoAs, is more encompassing and comprehensive, leaving more leeway to its members to make decisions, and considering it a more democratic model of cooperatives, that their growth within the Cuban society has been slow and, in many cases, has not taken into consideration the principles and values of cooperatives for their creation and operation.

According to the ONEI's legal and administrative records, at the end of June 2015, the country had 5490 Cooperatives, of which 351 were CNoAs, 1727 UBPCs, 898 CPAs and 2514 CCSs representing 94% of the so-called classic or agricultural cooperatives which are divided into 76% in the Ministry of Agriculture, 18% in the Sugar Group, and 6% the remaining Bodies and Agencies.

In the last five years there has been an increase in the new types of economic management, the CNoAs, and a decline in the UBPCs and CPAs. If we compared the figures in 2011, there were 2165 UBPCs and in the first six months of 2015 there were 1727, with the difference of 438 UBPCs; something similar occurred with the CPAs, with 104 CPAs fewer.

The same thing doesn't happen with the CCSs, which declined and grew again in 2015. In 2017, the Cuban Government decided not to approve any more CNoAs and began the process of rectifying and reviewing the operations of those that were already created and waited until the perfect moment to leave open the possibility again of new CNoAs emerging in different sectors of the Cuban economy.

The foregoing behavior shows the mark the self-administered cooperative sector has had and will continue to have in Cuba. We must remember that these types of ownership have their roots in private property, because they are all owners of the end result obtained through their work, one member, one vote, and equality of rights and obligations, and owners of their own work.

Furthermore, the author believes that the following aspects in the establishment and operation process of the new cooperatives must be taken into account.

- The establishment of cooperatives must stem from the will and desire of the people.
- Having outreach programs, spots or radio or television programs to promote learning from the good examples of successful cooperatives in the country.
- Having sufficient types of legal counsel for those who aspire to become part of a cooperative.
- Having programs of systematic training before and after the establishment of a cooperative for those who are interested in forming a cooperative or those cooperativists who are already members; there is a general lack of knowledge about the issue.
- To continue stimulating the establishment of cooperatives throughout the country, keeping in mind the need to train those who wish to be a member of a cooperative, and to perfect and speed up the procedures established for handling new proposals for cooperative establishment.
- Facilitating the creation, promotion and development of wholesale markets wherever necessary on a national level, as an indispensable means to acquire raw materials and inputs for the cooperatives.
- In a few years, being able to have a cooperatives law, which groups together and represents all types of existing cooperatives and those that will be created in the future, or, an institute or ministry that addresses the issues on cooperativism.

As prospects in the process of establishing cooperatives in different sectors of the Cuban economy, cooperatives will continue to become a solid source of employment. They are destined to occupy a highly significant place as an

organizational and production alternative in the modernization of the national economic model.

The development and potential of Cuban cooperativism is about to become a driving force in the economy of both the country and the territories and will embody the guidelines of the policy outlined in the Sixth Party Congress. The social responsibilities acquired by cooperatives, in their new types of administration, provide an answer to the needs of the people in their surroundings.

The creation of the new cooperatives (CNoAs) under Decree Law 305 represents a step forward in developing the Cuban society, which may contribute to introducing efficiency and effectiveness in the country's economic activities and processes. Important challenges must be overcome so that these new types of cooperatives throughout the different approved sectors are able to move forward without any hiccups and take into account the mistakes made in agricultural cooperatives, so they are not repeated.

There are many difficulties and obstacles that must be overcome in order for this emerging cooperativism, in different sectors of the Cuban economy, to be able to progress and show the all-around positive results which are necessary in these times of transformation and change in Cuban society.

Cooperatives in Cuba contribute to the strengthening of local development by being bound to the territory where they are located. This way, they favor endogenous development of that territorial area. Also, one of its missions is to contribute to the sustainable development of its communities, which is reflected in the sixth cooperative principle of the Alianza Cooperativa Internacional [International Cooperative Alliance] (ACI): "Cooperatives serve their

members more effectively and strengthen the cooperative movement, working together through local, national, regional and international structures” (ACI, 1995).

Cooperatives have the power to produce wellbeing and are able to increase the standard of living of its members and other people who live in nearby territories, through their alternative production and services. Cooperatives are significant stimulating agents of local development.

Some Reflections on Local Development
Cuban cooperatives are closely linked to local and community development in their territory. Getting the majority of the people to participate in the decision-making process, from the elementary to upper levels, is contributing to an increased feeling of belonging in local areas. According to Limia, “increasing local development work would imply an important change in mentality and management styles and methods” (Limia, 2006:14)

Regarding the concept of local development, there are many definitions and assessments today. According to Arocena, quoted by Guzon (2006), local development is defined as “specific paths of development that are shaped by historical and geographic elements and mentalities, but are not completely predetermined. Instead, they transform and evolve from the practices of the players themselves, combined with favorable circumstances and situations” (Guzon, 2006: 72).

In addition, Gallicchio and Winchester believe that local development is an endogenous growth and a procurement of resources from outside sources. Therefore, local players are challenged to use these resources they find in their territories and those they receive through

other channels in order to improve their own life conditions (Gallicchio, Winchester, 2004).

Di Pietro poses that “local” is a concept that is relative to a broader space. A local level cannot be analyzed without making reference to a more encompassing space in which it is inserted (municipality, district, province, region, nation). Currently, the local/global comparison is played with, revealing the paradoxes and relationships between both terms (Di Pietro, 1999).

Therefore, Guzon (2006: 72) believes that development is “the process that guides local players through actions that transform the territory in a desired direction and is continuous in nature, even when partial goals are outlined like a spiral stairway.”

The author has adopted the definition established by Sorhegui and Leon on local development (2007:6): “A reactionary process of the economy and driving force of local society, that by using endogenous resources found in a specific area or physical space, is capable of stimulating and promoting its economic growth, creating jobs, revenue, wealth, and above all, improving the quality of life and the social wellbeing of the community.”

True local development is achieved by incentivizing the work of community organizations, training the people who live in these territories, maximizing the use of human and material potential, i.e., taking into account their strengths and capabilities. Aside from optimum utilization of external resources, it is necessary to attain active participation of all people implicated in the process.

Limia (2006) believes that promoting local development contributes, consequently, to a new form of participation from below, from the foundations, but that would require exercising

the citizen's new situation, a new sensibility in their responsibility to the local community and surrounding areas, because the people who would be making decisions would increasingly be the main beneficiaries and the ones affected by their successes and failures.

Participation must be an essential element of development. The right of the entire population to decide on something that will influence their lives implies a distribution of power in the society and the transformation of the concept of development.

It is obvious that to be able to increase participation in the decision-making process from below, the social players must be educated, committed and directly involved in the local development process in their territory. Participation may be understood as a voluntary process assumed by a group of people, consciously, with the purpose of achieving certain goals of collective interest and developing ideas and joint action among participants. Determination of participation is the response to a decision and a personal commitment.

The fundamental aspects to promote local development are closely linked to improving the territory's material conditions, as well as training the actors involved in every step related to local development. It is obvious that the more prepared community members are, the more participation there will be in the decision-making process and all activities performed.

For Gallicchio (2004: 4), local development needs to address certain key aspects: a multidimensional and comprehensive approach—one that is defined by the ability to coordinate the local with the global and by a process that requires development actors geared

toward cooperation and negotiation among these same actors.

In order to attain a satisfactory result, based on the above, cooperation must be established between the local level and other actors at different levels (regional, national and international).

For Enriquez, local development has the following connotations: it constitutes a process of dialogue among agents—sectors and forces that interact within a specific territory, which contributes to boosting the common development project with real citizen participation. This implies generating economic growth, equality, social and cultural change, ecological sustainability, gender perspective, and spatial and territorial quality and balance. This contributes to improving the quality of life for each and every family and citizen living in the territory, and thus, will assist in the country's development. In so doing, the challenges from globalization and the transformations caused by the international economy can be faced satisfactorily (Enriquez, 2003).

The importance local development has as a necessary tool in the close relationship between local agents and regional, national, and international agents is proved.

According to Garofoli, quoted by Boisier (1999: 13-14): "Endogenous development effectively means the ability to transform the socioeconomic system; the ability to react to outside challenges; the promotion of social learning; and the ability to introduce specific types of social regulation on a local level that facilitate the development of these characteristics. In other words, endogenous development is the ability to innovate on a local level."

Boisier specifies that “endogenous development is produced by a strong coordination process of local actors and several different types of intangible capital, in the preferred framework of a collective political project for the development of the territory in question” (Boisier, 1999: 15).

The close relationship that exists between endogenous and local development is undeniable, considering that local development will always be endogenous.

Popular Councils are closely linked to the local development of Cuban territories at a municipal, provincial and national level. They are located more specifically in cities, towns, neighborhoods, settlements and rural areas. They are established by the delegates elected in the districts. These Popular Councils work on creating production and service activities to cover the economic, cultural, education and social needs of the people. They foster participation of local actors in solving their problems and coordinate actions among the entities within their territory (Cuban Constitution. Article 104. 2003). Popular Councils become a valuable instrument in how local development is carried out throughout the country’s territories.

Among the greatest challenges facing the local development – cooperatives relationship today are the following:

- Continue strengthening local governments through training in the topics necessary to obtain material and financial resources to develop the territory, through different channels;
- Improve people’s quality of life;

- Stimulate innovation and the search for solutions to the territory’s problems;
- Fostering the entire endogenous developmental process in each territory;
- Continue with the decentralization process in decision-making by those involved in local development of each territory, in order to facilitate greater autonomy for local governments.

The author believes that people need to internalize the fact that local development is a way to take advantage of local sources, to empower endogenous development and make proper use of outside resources.

Above all, the challenges faced today by cooperative – local development relationships must be overcome if we wish to attain a synergy among all players of any town involved in the development process. This would allow us to reach sustainable development and incentivize endogenous development in every territory.

There is no doubt that local development is a strategy that stimulates economic recovery, favors participation of people in the decision-making process and drives the satisfactory use of endogenous resources. ■

REFERENCES

- Alianza Cooperativa Internacional (1995) ‘Declaración de la Alianza Cooperativa Internacional sobre la Identidad Cooperativa’. [International Cooperative Alliance (1995) “Statement of the International Cooperative Alliance on the Cooperative Identity”] ICA, XXXI Congreso, Manchester, at <http://www.cooperativaobrera.com.ar/institucionales/declaracion.jsp>
- Barrios, M. (1982). La ANAP dos años de trabajo. La Habana [The ANAP two years of work. Havana: Propaganda del PCC. [PCC Propaganda]
- Boisier S. (1999) Desarrollo local: [“Local Development”] ¿De qué estamos hablando?. [What are we talking about?"] Document commissioned by the Chamber of Commerce in Manizales, Colombia at: http://www.fts.uner.edu.ar/catedras03/adm_publica/lecturas/27_Desarrollo_local.De_que_estamos_hablando_BOISIER.pdf
- Cuban Constitution (2003). Article 104.
- Di Pietro L. (1999) El desarrollo local. [Local Development.] The status of this issue. [El desarrollo local. Estado de la cuestión]. Buenos Aires: FLACSO

- Díaz, B. (1998). El Enfoque Participativo en Ciencias Sociales: una aplicación de los 90. [The Participatory Approach to Social Sciences: an Application of the 90s.] En Educación Popular y Educación. [In Popular Education and Education.] Havana: Caminos.
- Enriquez A. (2003) Desarrollo Local: hacia una nueva forma de desarrollo nacional y centroamericano, ["Local Development: Toward a New Type of Domestic and Central American Development. Alternatives for Development,"] n. 80, December. San Salvador:
- Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Article 4. (2002:1406). Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Havana: MINJUS.
- Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Article 5. (2002:1406). Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Havana: MINJUS.
- Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Article 8. (2002:1407). Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] . Havana: MINJUS.
- Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Article 9. (2002:1407). Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] Article 9. Havana: MINJUS.
- Gaceta Oficial de la República de Cuba. [Official Gazette for the Republic of Cuba.] No.72, 29 November. (2002). Ley 95 del Consejo de Estado [Law 95 of the State Council.] Havana: MINJUS.
- Gallicchio E. (2004) "El desarrollo económico local en América Latina. [Local Economic Development in Latin America.] ¿Estrategia económica o construcción de capital social?. [Economic Strategy or a Construction of Social Capital?"] Programa de Desarrollo Local CLAEH, Uruguay [CLAEH Local Development Program, Uruguay]
- Gallicchio E., L. Winchester (2004) Territorio local y desarrollo: experiencias en Chile y Uruguay [2ª edición]. Local Territory and Development: Experiences in Chile and Uruguay [2nd Edition]] Montevideo: Ediciones SUR y CLAEH [SUR and CLAEH Editions]
- Guzón A. (2006) Estrategias municipales para el desarrollo local en Desarrollo local. [Municipal Strategies for Local Development in Local Development] Retos y perspectivas. [Challenges and Perspectives.] Havana: Editorial Academia.
- Jiménez, R. (1996). Cooperativización agrícola en Cuba. [Agricultural Cooperativization in Cuba.] Universidad de la Habana, Programa FLACSO-Cuba. Havana: Universidad de la Habana.
- Jiménez, R. (2006). Educación para la participación social en las Unidades Básicas de Producción (UBPC). Estudio de Caso. [Education for Social Participation in Basic Cooperative Production Units (UBPC). A Case Study] Doctoral Dissertation. Havana: Universidad de La Habana.
- Limia M. (2006) 'Prologue' in A. Guzón, op. cit. Havana: Editorial Academia
- Matías, A. (2010) Ensayo crítico sobre el cooperativismo agrícola en Cuba. [A Critical Essay on Agricultural Cooperativism in Cuba] <http://www.eumed.net/cursecon/ecolat/cu/2010/amg.htm> Activities I Group II Group III Group IV Total Group
- Nova, A. (2004). El Cooperativismo línea de desarrollo en la economía cubana 1993-2003. [Cooperativism Line of Development in the Cuban Economy 1993-2003] Havana: CEEC, Caminos.
- Oficina Nacional de Estadística e Información de la República de Cuba. [National Office of Statistics and Information of the Republic of Cuba] (June 30, 2015). www.onei.cu.
- Pampín, B. R. (1996). Los cambios estructurales de la Agricultura cubana. [Structural Changes to Cuban Agriculture.] Havana: Editorial Ciencias Sociales. [Social Science Publishers]
- Reglamento General de las UBPC MINAZ. [UBPC General Regulations MINAZ.] (2003). Reglamento General de las UBPC MINAZ. [UBPC General Regulations MINAZ.] Havana.
- Rodríguez, C. R. (1983). Letras con Filo, Cuatro años de Reforma Agraria. [Edgy Letters, Four Years of Agrarian Reform] Havana: Editorial Ciencias Sociales. [Social Science Publishers]
- Sorhegui R., C.M. León (2007) ¿Es viable el desarrollo local en Cuba?. ["Is Local Development Viable in Cuba?"]. Facultad de Economía, Universidad de La Habana [School of Economics, University of Havana]

Betting on the future. Some experiences of community work with children from the University of Havana, Cuba

Janet Rojas Martinezⁱ

The training and protection of children and adolescents in Cuba is a priority task and part of State policy since the revolutionary triumph in 1959. The University of Havana (UH), an outstanding entity of Cuban higher education, promotes aligned research with development priorities and the needs of the country, based on the dynamic community-university-society interaction. In this sense, the theme of childhood and adolescence is a transversal axis in all the substantive processes of the university, say training, research and extension work.

The Latin American Faculty of Social Sciences (FLACSO) Cuba Program is one of the UH centers, which has a greater number of research related to children and adolescents, developed in the communities, with a participatory and interinstitutional approach. This paper intends to systematize the actions developed by the UH in the field of childhood and adolescence, and especially the role of FLACSO-Cuba, through concrete experiences with children in communities of different social contexts.

The revolutionary triumph that took place in Cuba in 1959 was characterized by broad popular participation and notable structural, educational, health, political and economic changes (Bell, 2004). The declaration of a government of socialist character, inclusive, with all and for the good of all, modified the functions of most institutions, for the welfare of the people. Since the beginning of the process, the training and protection of the new generations has been a priority task, and is an integral part of

State policy (Code of Children and Youth, 1978). Thus, in 1978, the Code on Children and Youth was approved in Cuba as a way to implement the Convention on the Rights of the Child in domestic legislation. This Code regulates the participation of children and young people in the construction of the new society, and establishes the obligations of the individuals, agencies, and institutions that intervene in their education. (Code of Children and Youth, 1978)

In the decade of the 90's of last century took place in Cuba a deep economic crisis known as Special Period. Despite the difficult situation in the country, it was one of the first to ratify the Convention on the Rights of the Child (CRC) in 1991. Although the Cuban government had demonstrated decades of strong political will to guarantee the development and well-being of their infants, especially in educational coverage and attention to maternal and child health; the signing of the CRC makes the child a subject of law, deserving special treatment other than the other age groups (United Nations, 1989). At present, Cuba is a signatory of international conventions and instruments that serve as a framework for commitments and goals for comprehensive protection of children and adolescents.

These include those emanating from the Millennium Declaration and the Plan of Action for a World Fit for Children, the objectives of the United Nations General Assembly Special Session on HIV / AIDS, the World Declaration on Education for All and the Millennium Development Goals (MDGs); with a commitment to monitor progress towards the

achievement of its goals and objectives. (MICS, 2014) The almost tricentennial University of Havana, founded in the year 1728, most of Cuban higher education, is and has been a cultural and identity reference for our country and the world. It has played a decisive role in the scientific-technical development of the nation; with relevant results, both in the field of Social Sciences, Humanities and Economics, as well as in the Natural and Exact Sciences, which have given their researchers and professors a high national and international prestige.

Closely linked to the revolutionary process, and even long before it materialized, the University of Havana has taken up the challenges of the development of education, science and culture; to guarantee the generation of scientific knowledge and the integral and continuous training of highly qualified professionals. In this sense, the relevance of their research, aligned with the development priorities and the needs of the country, promotes the dynamic community-university-society interaction (Intranet UH, 2017).

In correspondence with the above, and the importance that children and adolescents merit for the State, the scientific community and Cuban society in general, the theme of childhood and adolescence has been approached from different areas of knowledge in the UH, in Special from the Social Sciences.

University-childhood-adolescence

Childhood and adolescence have been studied in a large part of the faculties and research centers of the university, and transversal axis in all the substantive processes of the institution (teaching, research and university extension). Synthesis of the work currently carried out by the UH in the field of childhood and adolescence in each of these processes.

Teaching

The continuous training of competent professionals, both at the undergraduate and postgraduate level, is one of the main objectives of the UH.

In the undergraduate the theme of the childhood and the adolescence, it forms part of the curriculum of the social sciences careers of Psychology, Sociology, Law and Social Communication; in disciplines such as Human Development, Health, Family and Education. Aspects related to children and adolescents are inserted in the curriculum of several subjects, but only in the career of Psychology specific subjects are given dedicated to these, such as: School Development, Early Childhood and Preschool Development, Adolescent Development and Youth, and others such as Child and Adolescent Assessment and Diagnosis and Child Psychotherapy.

On the other hand, within the elective subjects offered by Sociology, there is one dedicated to the Sociology of children and in the career of Law there is an optional subject dedicated to the rights of the child. The work of diplomas in option to the title of licenciado (a) where children and adolescents are object of investigation, are more frequent in the races previously exposed, especially in Psychology and Sociology. Between 2011 and 2014, in the Faculty of Psychology of the University of Havana, about 209 diplomas were defended, 42 of them referring to children and adolescents.

The main research topics, in order of priority, were: learning strategies; Psychotherapeutic experiences (children with emotional, behavioral, Autistic Spectrum, potentially talented children, with surgical treatment of ambiguous genitalia) and psychological characterization and social

relations (children with obesity, children entering first grade, school children victims of child abuse).

In the Career of Sociology, belonging to the Faculty of Philosophy and History between 2011 and 2014, 7 papers were defended related to the subject. The main research topics were: Family (family educational function, and paternal - filial relationships); Child care (perception of children about their parents' divorce, food care, child adoption and abandonment) and health (Health risks in adolescent mothers, perception of motherhood in children)

At the postgraduate level, the subject is dealt with fundamentally, in thesis work in option to the scientific degree of doctor or to the master's degree, especially the latter. In the Faculty of Psychology, between 2006 and 2015, approximately 271 theses were defended, of which 28 related to research in children and adolescents: 5 theses of Educational Psychology; 21 thesis of Clinical Psychology and 2 theses of Social and Community Psychology.

In addition to a thesis in option to the scientific degree of Doctor in Pedagogical Sciences titled "Psychopedagogical Alternative for the education of the emotional intelligence in children with learning difficulties" of Msc. Zoe Silvia Bello, discussed in 2009. The main topics covered in the master's theses were: Strategies of learning and emotional capacities; Psychotherapeutic experiences of child labor (autistic children and children with cerebral palsy); Difficulties in learning; Psychological intervention for healthy sexuality (in adolescents with precocious sexual intercourse and in adolescents with mental retardation), among others.

In the Faculty of Sociology, between 2006 and 2015, four Master's theses were defended, linked to research in children and adolescents, related to: culture and childhood; Food care in infants with nutritional disorders; Poverty and child violence and protective factors in childhood. He also defended a thesis of option to the scientific degree of Doctor in Sociological Sciencesⁱⁱ.

Investigation

The research activity at the University of Havana is directed by the Vice-Rectorate of Research and Postgraduate Studies, and is developed from the lines of research that are drawn up, in accordance with the country's priorities and the Ministry of Science, Technology and Environment (CITMA), the governing body of this activity. The research is usually organized through projects under the CITMA Manual of Proceduresⁱⁱⁱ, with high relevance and pertinence, and in accordance with the Guidelines of the economic and social policy of the Partido and the Revolution^{iv}, which in recent years the country has been designed as a development strategy. At present, the UH has more than 100 projects registered in the Information Management System of the university (SGI-UH)^v. Of these, 13 are related to children and adolescents, 11 in the research line of Social Sciences and Humanities and 2 in Natural Sciences and Exact.

From the Social Sciences and Humanities, the investigations approach the subject in the areas of demography, education, psychology and communication. In the Faculties of Philosophy and History, Psychology and Communication, several projects are developed with the aim of stimulating the conception of health as a value in children, based on the thought of the Cuban national hero José Martí;

providing psychopedagogical care to children, adolescents and young people with special educational needs; develop emotional skills in elementary and middle school students; to contribute to the appropriation of a gender approach in children through work with artistic manifestations and social communication, to study empathy in neurodevelopment and to contribute to the psychosocial development of children and adolescents, especially those living in conditions of vulnerability Social.

Research centers such as the Center for Demographic Studies (CEDEM), the Institute of Materials Science and Technology (IMRE) and the Latin American Faculty of Social Sciences (FLACSO-Cuba) also provide important results that deepen and reveal new knowledge about this group Population. Aspects of great importance and pertinence, such as teenage pregnancy and the role played by the family in the interruption or development of the family, are investigated in CEDEM. On the other hand, FLACSO is involved in the preparation of the first Atlas of Children and Adolescents in Cuba, together with the National Bureau of Statistics and Information (ONEI) and the collaboration of the United Nations Children's Fund (UNICEF) in Cuba. From the Natural and Exact Sciences, the Faculties of Chemistry and Biology coordinate projects on environmental education from Chemistry in the early ages and the prevention and attention of eating disorders with emphasis on obesity.

College extension

The University Extension is one of the core processes of higher education in Cuba and is focused on socio-humanistic training and the professional preparation of students and teachers; but also to the improvement and development of

communities and the population in general (Intranet UH, 2017).

Extension work is developed through community projects and actions in order to solve social problems; of course delivery; the promotion work of the University Honorary Chairs and the cultural and sports university facilities; the promotion of the History of Cuba and the University of Havana; of the development of integral programs for the promotion of health; As well as the dissemination of the life of the university community in society (Intranet UH, 2017).

The work centers, schools, socio-cultural projects and the community in general, are beneficiaries of the university's knowledge, while it is fed in its exchange and collaboration with the territories.

The extension work is part of the work objectives of each area of the UH, according to the particularities and potentialities of each one of these. One of the main outputs is the community actions and projects, which, given their wide range of actions, have different objectives, methodologies, target groups, territorial contexts, intervention spaces, etc.

Community-university interaction is an educational, dynamic and creative process. The activities are carried out both in the communities and on the university campus, with the aim of bringing children and adolescents closer to the university context and working on vocational training, stimulating, from an early age, interest in the University. An example of this is the initiative developed by the Faculty of Law as part of the Ismaelillo Project, where it is possible to meet children from nearby schools in areas of the faculty with the aim of instilling values for the children and increasing their knowledge about culture and Rights, in a didactic and

playful way. The participation of students and teachers has increased; as well as the community interventions they have carried out. This community project has extended its scope of action at national level, reaching other universities.

Another experience is the one developed by students and professors of the Faculty of Communication, as part of the interdisciplinary edu-communicative project Escaramujo, in Schools of Integral Formation (EFI)^{vi}. The actions are aimed at contributing to the educational and transformative process in children in primary, secondary and special schools, with greater emphasis on those in which they study adolescents with misconduct or who have committed acts that the law classifies as crimes.

Some experiences of community work with children from FLACSO-Cuba.

The Latin American Faculty of Social Sciences (FLACSO), Cuba program is one of the 15 research centers in the University of Havana. Founded in 1984, she is a promoter of research and postgraduate teaching in the area of Social Development in Latin America and Cuba, with a multidisciplinary collaboration approach, which has allowed her to obtain recognition and prestige at national and international level.

FLACSO is one of the centers of the UH, which has investigated more in childhood and adolescence. For several years, faculty members have addressed the theme in research projects of local and national relevance, master's and doctoral theses, workshops in communities and institutions, scientific debates and specialized conferences, which complement and make possible the study and the dissemination of the advances in these subjects.

In a transversal way, the subject is approached by the different areas of research that the institution possesses, in aspects related to education, health, family, social and community work, formation of values, social disadvantages, fostering intergenerational relations, territorial differences, and more recently in the feeding of children in school institutions and in the family.

Generally, the practice of these actions is carried out through extension activities, through projects and actions in the communities, that allow to reach greater knowledge about the contexts of life of children; Identify problems and conflicts and their possible solutions; To carry out educational work in the family, institutional and community environment, among others. In these experiences, it is committed to multidisciplinary and interinstitutional work, with a participatory approach, involving different institutions and community actors. In a novel way, they have been incorporated in this process of building knowledge, techniques and tools of social cartography and Geographic Information Systems (GIS), which are widely used worldwide, with excellent results, and unfortunately are few employed by the Social Sciences in Cuba. The following are three experiences of community actions with children in different social contexts, developed by FLACSO-Cuba teachers. The first deals with the social inclusion of disadvantaged children from the proposal of an educational program, the second is the promotion of intergenerational relationships between children and older adults; And the third is the identification of environmental problems in communities, where GIS techniques and social cartography are used.

The situation of social disadvantage diminishes the possibilities of participation and social inclusion of the children who are in it. The

educational actions, with the collaboration of community institutions and the school, are an alternative for the attention of the children in this situation.

In 2006, the thesis was defended in option to the scientific degree of Doctor in Educational Sciences: "Childhood and social disadvantage in Cuba: Proposal of preventive educational program for its social inclusion"; of Dra. Sofia Porro Mendoza^{vii}. The objective was to contribute to the improvement of community preventive care of children in situations of social disadvantage from the proposal of an educational program to achieve greater social inclusion.

The child population with which they worked had adverse socioeconomic and family conditions for their adequate development from the individual and social point of view, with a greater tendency to present problems in the behavior, in the school results and in their social participation, mainly in the school. This caused infants situations of rejection or discrimination on the part of their peers.

As a starting point, a social study was carried out at the community level; An analysis of the socioeconomic, family and school situation of the selected children in social disadvantage, and then preventive educational workshops with a gender approach, which served as a basis for elaborating a proposal for an educational program, according to the particularities of the community where it was carried out the study^{viii}.

The proposed educational program aimed to achieve greater acceptance of children in social disadvantage by their peers, the pedagogical group and in general by the community; promote ethical and moral values, rectifying possible negative influences coming from their families; develop in children formal

education elements and good behavioral habits; and raise their self-esteem, favoring a relationship on an equal footing with their peers. Based on this program, an experience with children between 9 and 12 years old was carried out during two consecutive school years (2002-2003 and 2003-2004). Two mixed groups (girls and boys) were formed of 15 participants in each of them.

The main activity was the development of workshops aimed at addressing various thematic axes: formal education, interpersonal relationships, future projections, social participation, gender relations, and preservation of the environment. The work was carried out intersectorally, with the participation of the educational group of the institution, the Commission for Prevention and Social Care, activists of the Federation of Cuban Women^{ix}, the community historian and workers of the video room where she took Experience. The activity had a weekly frequency with duration of two to three hours.

The workshops were conceived from the perspective of Research-Action-Participation (IAP) and the theoretical-methodological conception of Popular Education, which are tools that stimulate and favor participation. (CMMLK,1999). The results of the activities of the educational program were described as positive. It was possible to verify the acquisition of new knowledge in general and about its community, in particular; as well as greater social integration. The personal appearance of the children improved, despite their limited material possibilities and lack of family care, and most of them assimilated the importance and necessity of proper appearance and hygiene.

According to the opinion of the School Board and teachers, there was a marked

improvement in behavior and discipline, with positive changes in the opinions of classmates about the selected group. It was observed greater participation in classes and activities programmed, mainly in the extracurricular ones.

The assimilation of elements of formal education and of gender relations incorporated into daily life, resulted in positive advances in communication and interpersonal relationships between the children studied, and with the rest of the classrooms. After completing the workshops, there was a greater self-esteem in the children, as a result of: being selected to participate in the workshops, being the bearers of new knowledge in relation to the rest of the students, the motivation of the teachers to share this knowledge with the Group, stimulating expressions of praise for the advances in their behavior and participation, and the group's vision and the teachers towards them.

The insertion in educational activities collateral to the educational process, constitutes a fundamental route for the preventive attention directed to the sector of the infancy that lives in conditions of social disadvantage. The experience showed how the educational processes are able to develop in the participants habits and values that contribute to the favorable transformation of individual and group behaviors. The educational preventive program developed contributed to greater participation, improved communication and interpersonal relationships of socially disadvantaged children in both school and community settings.

This study and the proposal of the educational preventive program with children with social disadvantage is only a sample of the work that can be developed with this group of children, who need institutional support, specialists, family and community in general.

The results of the program were highly valued by the School Board of Directors, teachers and members of the People's Council^x.

Fostering intergenerational relationships

Between 2010-2012, the subproject "The increase of intergenerational cohesion"^{xi} was developed, coordinated by Dra. Luisa Iníguez Rojas and other professors currently working at FLACSO-Cuba^{xii}. The objective was to implement and validate good practices to foster relationships between children and older adults, through the creation of meeting spaces for the development of activities of reciprocal interest.

The experiences were developed in districts differentiated by their physical and social environments^{xiii}. The first one characterized by a high population density and housing, accelerated deterioration of its construction fund, its hygienic-sanitary conditions and problems of coexistence. In the second neighborhood, the good technical condition of the constructions, sanitary and sanitary networks and roads, predominated, with predominance of houses and high density of public spaces. We worked with semi-inpatient seniors in health institutions, and fourth grade children in primary education (9-10 years of age). The meetings were held at the Casas de Abuelos^{xiv}, taking into account the physical-motor and psychological limitations inherent to the age in some older adults and in order to achieve a greater rapprochement, understanding and familiarization of the children with the environment of the elderly in those Institutions. As recommended by the directors of these centers, they lasted approximately one hour.

The investigation was initiated by an interest diagnosis that was made to the children and older adults of the selected institutions. To

do this, two instruments were developed, one to apply to children and the other to institutionalized elders, thus being able to explore the willingness of both groups to meet. From the results of the diagnoses, a sequence of work sessions was organized, with specific designs, transformation and evaluation, according to interests identified in each age group. In these sessions it was included transversely that the children simulate limitations of the old age, as: to fasten the knees with ropes to hinder the mobility, to put spectacles, to paint the hair of white and others.

The methodological triangulation was applied to obtain objective and subjective information of the social reality in question. The use of techniques, both quantitative and qualitative, guaranteed an integrative view of the phenomenon studied, complementing quantifiable data and field observations with the own assessment of both children and the elderly.

The results showed that almost all the older adults expressed interest in the possibility of a visit by the children, and considered that in those meetings the elderly would benefit most. What they would most like to teach children were "citizens' values" related to rules of conduct, followed by "distraction" activities, games, songs and dances; And "skills", crafts, crafts, among others.

For their part, the children expressed an interest in visiting the elderly, with a variety of answers about what they would like to learn, such as: norms of civility or citizenship, their life histories, songs, stories, games, etc. In some cases, the interest pointed to the limitations of old age, with phrases like "learning to walk without seeing", "to walk with a cane", "to learn to suffer".

At the beginning of the activity both children and elderly gave explicit evidence of cooperation and help in the face of limitations, showing affection between both groups, where they reaffirmed norms of civic behavior and values such as courtesy, respect, sensitivity and support. The exchange of the older adults with the infants provoked a feeling of youth and dynamism that was manifested through songs, dances and spontaneous initiatives that enriched the encounters. The diagnosis of encounter interests between older adults and children was an essential step in the characterization of the specific contexts where these groups operate. Their relevance was verified, and acceptance was confirmed by both age groups. The successes of the diagnosis and the evidences of the feasibility of the application of these practices corroborate their importance in the personal, social and affective development of the elderly and children who participated in them.

Environmental education in primary school children

In May-June 2016, the 1st Week of Sustainability took place at the University of Havana, whose paradigm was environmental education, in order to contribute to the construction and design of educational, social and cultural spaces that enable the exchange And the plurality of knowledge. One of the activities carried out by FLACSO-Cuba^{xv} was the encounter with 5th grade children from two primary schools in the country's capital¹⁶.

The objective was to raise awareness among children about environmental issues, focused on protecting their immediate environment and encouraging their active participation in environmental care. We used methodological references of environmental education, as it helps to raise awareness about

the need to care for the environment and its problems. In addition, it allows participants to express knowledge, attitudes, motivations and desires to work individually and collectively in the search for solutions to current problems in their community and in the prevention of others that may arise.

Once the presentation of the team, the origin, the motive of the activity and the objectives, began to explore and deepen the knowledge of the children on the concept of the environment, which made them very participative. Then, some environmental problems, especially those in Cuba, were released and asked to identify problems in their environment (neighborhood, school and houses).

Another of the moments of the activity was the use of participatory cartography to identify environmental problems in the vicinity of the school, an area that for many of the participating children coincided with their place of residence. To do this, each child was given a printed image of Google Earth with the location of the school and the names of the surrounding streets, and was asked to locate in the same the environmental problems that they considered, based on their experiences. In the bottom right of the sheet a blank sector was enabled so that, after explanation, the children made their own legend.

The exercise allowed to know and locate the environmental problems that the children perceived in the surroundings of their school, that is where practically passes the greater part of their time. By taking into account their criteria and making them participate in matters that may affect positively or negatively in their daily spaces, they feel they are active subjects of the community, they increase their social responsibility in function of the care and protection of the environment and even can

venture to take concrete actions for the good of the community.

On the other hand, the exercise helped children to become more familiar with maps and new technologies, begin to develop spatial thinking from an early age and learn more about their territories from a perspective different from that used in the Traditional education. In the case of teachers, the experience was also of great interest, since the tools used are didactic, novel and effective ways that could be introduced in the teachinglearning process.

Subsequently, with the use of GIS, the information collected from the individual maps of the students was made up, and a synthesis map of the environmental problems identified by the children in both schools was elaborated (Figures 1a and b). The problem most frequently identified by children in both schools was the presence of garbage dumps in the community, indicated by almost all participants, followed by the existence of sewage in one neighborhood and broken streets in the other. Other problems identified were saladeros, loud music, noise, pollution, landslides, felling and burning trees, bad smell, among others.





Figure 1 a and b: Synthesis maps of environmental problems, made from the replacement of maps made by 5th grade children.

In order to identify the actions to protect the environment (neighborhood, school, and home), the students collected the actions proposed by children to protect and care for the environment. Some of the proposed initiatives were to clean the classrooms On Saturdays or Sundays, to campaign to collect raw materials, to make competitions to learn more about the environment, to reuse the bag of cloth and to diminish the use of nylon ones, to contact with organizations of masses like the Committee of Defense of the Revolution (CDR)^{xvi} to put Posters about environmental care, turn off unnecessary lights, and throw garbage in baskets. Finally, the contest "For the sustainability of my neighborhood" was convened, for all the students of the school and the workers. The same was to answer the question: How can I take care of the environment of my locality? using for this, different modalities like: drawing, composition, poem, model, collage or other initiative.

Final Considerations Childhood and adolescence is a subject studied in all substantive processes of the University of Havana (teaching, research

and university extension), with greater emphasis from the Social and Humanistic Sciences. Nevertheless, despite the importance and priority given by the Cuban State and society to its children and adolescents, the research carried out by the UH on this social group in recent years is relatively few, either in the thesis topic of Diplomas, master's degrees, doctorates and research projects.

The theme is developed mainly through extension work in community actions directed at children and adolescents. These activities enrich and give new knowledge to teachers and researchers, who in turn provide the community with their knowledge and experiences, encouraging feedback from both parties in the exchange and collaboration with the territories.

The Latin American Faculty of Social Sciences - Cuba Program, is one of the institutions of the UH, with greater research experience in childhood and adolescence, supported by research projects, master's theses, doctorates and a large number of actions in communities since Different approaches and methodological references. The activities carried out have benefited the personal, social, psychological, educational development of children and adolescents, as well as the increase of new knowledge about these social groups and their life contexts.

The use of new technologies and participatory mapping in community actions with children contributes in a didactic, novel and effective way to develop spatial thinking from an early age, and to increase the knowledge of their communities from a perspective different from that used in traditional education. ■

REFERENCES

General Assembly of the United Nations, Convention on the Rights of the Child. Resolution 44/25, New York, United States, 1989.
Bell, J. (2004): Cuba: A Socialist Perspective in Capitalist Globalization. Editorial Social Sciences, Havana, Cuba

Collective of authors (2013): The promotion of intergenerational relations. Experiences in neighborhoods of Playa and Centro Habana. Memories of the International Congress of Researchers on Youth, Center for Studies on Youth and the Communist Youth Union of Cuba. ISBN: 978-959-210-896-7 Palace of the Conventions, Havana, Cuba Intranet, University of Havana, at <http://intranet.uh.cu/>

Ministry of Public Health and UNICEF, Multiple Indicator Cluster Survey (MICS) 2014, Havana, Cuba, 2015 Republic of Cuba, Code of Children and Youth, Havana, Cuba 1978. <http://www.parlamentocubano.cu>

Rojas, J. (2016): Participatory Mapping and Geographic Information Systems. Some experiences from the Cuban social sciences. Electronic Journal of Social Development Studies: Cuba and Latin America. Latin American Faculty of Social Sciences (FLACSO-Cuba) ISSN: 2308-0132. Havana, Cuba.

ⁱ Professor of the Latin American Faculty of Social Sciences (FLACSO) Cuba Program. University of Havana. mail: janet.rojas@flacso.uh.cu

ⁱⁱ The year of realization is unknown because the thesis did not have cover of presentation.

ⁱⁱⁱ Projects Associated to Programs (PAP), Non-Program Associated Projects (PNAP), Business Projects (PE) and Institutional Projects (IP).

^{iv} A document presented at the Sixth Congress of the Communist Party of Cuba, which defines the economic system that will prevail in Cuba, based on the socialist ownership of the whole people over the fundamental means of production.

^v SGI-UH (Research Information Management System of the University of Havana), developed by the Computerization Department and the Vice-Rector of Research and Postgraduate.

^{vi} Schools of the Ministry of the Interior (MinInt), where Cuban infants and adolescents are involved in events that the law classifies as criminal or that manifest misbehaving social behavior.

^{vii} Full Professor of the Latin American Faculty of Social Sciences (FLACSO-Cuba)

^{viii} The experience was developed with children from the "Manolito Aguiar" primary school in the community of Playa de Baracoa, Playa municipality, province of Havana, Cuba.

^{ix} Organization of masses that develops policies and programs aimed at achieving the full exercise of the equality of women in all spheres and levels of society.

^x Link between the Municipal Assemblies and the base delegates, and aim to bring the basic services to the population.

^{xi} As part of the project "Cohesion as value" belonging to the Territorial Program of Social Sciences "The socialization processes for the development of values in the city of Havana" of the provincial delegation of the Ministry of Science, Technology and Environment

^{xii} The project was developed when these teachers were part of the Center for Health and Human Well-being (CESBH) of the University of Havana. Years later, CESBH merged with FLACSO and currently they belong to the faculty of FLACSO-Cuba (Dr. Luisa Iñiguez, Ms Danay Díaz, Lic. Verónica Polo and Lic. Janet Rojas).

^{xiii} The first experience was in the neighborhood of Cayo Hueso, municipality Centro Habana and the second in Alturas de Almendares municipality Playa, both in the province of Havana, Cuba

^{xiv} Social institution that provides daytime comprehensive care to the elderly who are not protected by any subsidiary or relatives who can attend them during the day, having as functional characteristics that make it difficult to perform activities of daily living instrumented and That maintain the basic functional capacities to carry out the activities of the daily life.

^{xv} The participating teachers were: Janet Rojas, Lic. Verónica Polo, Lic. Giselle Rodríguez and Lic. Yasminka Bombus ¹⁶ Raúl Gómez Elementary School, in the municipality of Diez de Octubre, and Latin America Primary School in the municipality of Boyeros.

^{xvi} Mass organization that aims to mobilize the entire people in the tasks of defending the Revolution and the achievements of socialism, by working directly with the people and families of the community.

The social situation of Cuban children and adolescent

Sofia Magdalena Porro Mendoza

This paper describes some of the indicators of the social development of Cuban children and adolescents, which give an integral picture of the current situation of these population groups. Very relevant has been the political will to design and develop policies, projects and social programs for the benefit of children and adolescents, as well as the articulation of entities in order to improve their quality of life.

Children and adolescents in situations of social disadvantage have been addressed from social prevention in schools and communities by teachers and community agents. There are several challenges for the Cuban State and Government to maintain, on the one hand, and improve, the quality of life of Cuban children and adolescents with equity and social justice, as it has been during the last six decades. Childhood, adolescence, quality of life, development, social equity During these almost six decades, the Cuban State and Government have prioritized adequate attention to children, adolescents and youth, to ensure their development and well-being, especially in relation to educational coverage and attention to maternal and child health.

At present Cuba has 11.2 million inhabitants, of whom 2.3 million correspond to the population with ages under 18; Which constitutes 21% of the total. (UNICEF/Cuba 2015/Castillo)

“There are more than 855,000 children under six years of age in Cuba, of whom 99.5 per cent attend an early childhood education programme or institution”. (CEPDE-ONEI, Diciembre de 2013).

“Cuba has adopted a holistic approach to early childhood development (ECD), providing children under six and their families with a system of integrated services that aims to promote the best start in life for all children and the maximum development of each child’s potential. These services have been scaled across the country, and today have universal reach with an equity focus, meaning that they are accessible to all children, with specific attention to ensuring access for the most vulnerable.

Early childhood development has been a priority in Cuba for the past 50 years, with ECD services, programmes and institutions put in place and strengthened over the years to achieve a common objective: the maximum possible integral development for each child, always applying an inter-sectoral approach and guaranteeing universal access with an equity focus (UNICEF/Cuba2015/Piedras).

There have been numerous programs and projects aimed at increasing the quality of life of children in Cuba. More and more people are being favored and the achievements are evidence of the work done. The well-being of children is an inherent purpose of the Cuban social project. Respect and attention to their rights constitute a strategy that, in a conscious and planned way, allows the projection of programs in favor of children.

Compliance with the Rights of Children in Cuba.

The State protects the rights of children through its Magna Carta "The Constitution of the Republic "of 1976, as amended in 1992.

Attached to the National Assembly of the People's Power, Permanent Committee on Children, Youth and Equality Rights of Women ".

As a result of the socioeconomic changes that occurred in the country in the 1990s and based on the contributions of legal and social studies and research, the body of laws that favor children are being modified and adapted.

The rights of girls and boys are protected through the design, implementation and evaluation of social policies, programs and projects in the areas of health, education, social security and others. For example:

Maternal and Child Care Program

Maternal Health Care

- Prevention of preconception risks for all women in all communities: at the family doctor-and-nurse office
- Prenatal care for all pregnant women in all communities: at the family doctor and-nurse office, in polyclinics and hospitals for 3specialized controls
- Maternity homes for pregnant women with risks that do not require hospitalization. 138 maternity homes in the country.

Child Health Care

- Institutionalized birth for all children in hospitals.
- Care for new-born with low birth weight, in hospitals.
- Immunization for all children in all communities, in polyclinics.
- Prevention and control of diarrheal diseases and acute respiratory infections for all children In all communities, at the family doctor-and-nurse office.
- Unintentional injury prevention for all children in all communities: at the family doctor-and-nurse office.

Genetic screening for all children in all communities: at the family doctor-and nurse office.

Well Child Care for all children aged 0 to 19 In all communities: at the family doctor-and-nurse office.

(UNICEF/Cuba2015/Piedras)

“Educate Your Child” Programme. It is a result of Cuba’s commitment to providing all children an opportunity to access early childhood education, so that they enter first grade after having participated in stimulating activities that prepare them for school. And also, it is built on three essential elements that reflect the broader Cuban approach to Early Childhood Development (ECD): family, community, and an inter-sectoral approach. (UNICEF/Cuba2015/Piedras)

Formal Education Program for Sexual Behavior. This program allows to develop activities with adolescents and young people related to the subject in the schools, as in the communities. The most frequent topics are: sexually transmitted infections, the use of contraceptives and pregnancy in adolescence. - Comprehensive care for the family and the adolescent. In the municipalities there is a house for the guidance of families and adolescents. These institutions are attended to by families or their members who need to be oriented, trained and educated to face some family problem, mainly with children and adolescents.

The "For a world right" program, led by the Ministry of Justice and composed of various institutions and organizations, has promoted the promotion of a culture of rights, to strengthen the meaningful participation of children in matters that Compete Various institutions, political and mass organizations and citizens in general represented by the local government in their different instances in Cuba, are in charge of the

development of these programs and the joint effort for a better and happier situation of Cuban children.

The support of various United Nations agencies - including the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), the United Nations Educational, Scientific and Cultural Organization), - also provides better care for children in the country. This is materialized through its cooperation programs with the Government, which incorporate specific topics such as education, food, health, nutrition and hygiene, and general themes such as children and women.

Compliance the rights of children is not only at the national level, but also at the international level. In this sense, Cuba raises its voice in favor of children when it defends the rights of Cuban and other children - especially those of the third world - in multiple international forums. For example; Cuba subscribes to the International Convention on the Rights of the Child in 1989 and has ratified it on several occasions;

Cuba responds to the agreements of the World Summit for Children with a National Program of Action that supports the programs that are developed in the nation and whose evaluation and systematic monitoring shows the country's compliance with the proposed commitments, goals and objectives for the benefit of children;

Cuba proclaims the defense of the rights of Cuban children and the world through their participation in international events related to the subject (Alvarez and Rodríguez, 2000). Respect for the rights of Cuban children can be seen in the behavior of important indicators for their development such as health, social security, education, preventive care for children in social disadvantage and others related directly or indirectly to This important

segment of the population. In view of the objectives of this study, reference will be made to the last two mentioned indicators.

As it is known, education has been a prioritized indicator in the Cuban social system. The Cuban State and Government, with the participation of political and mass organizations, are responsible for the structuring and operation of a national education system oriented to the development and training of the new generations in an educational process that is integral, systematic, participatory And in constant development, which is based on a set of principles established by the Cuban Ministry of Education, which form an intimately related system and among which we can point out the following (MINED, 2001):

The principle of the mass character and equity of education.

Cuban children have the possibility of quality education without distinction of age, race, sex, religion, place of residence. The educational process also includes those with physical or mental limitations, as well as those with behavioral disorders. This possibility includes all levels of the educational process for children, young people and adults.

The principle of study and work.

In the Cuban educational system, the combination of study with work-a fundamental variant of the principle of linking theory with practice, school with life and teaching with production-has deep roots in José Martí's conceptions of education, who summarized the most progressive Cuban pedagogical ideology. Martí, like his predecessors, not only defends scientific education, but proclaims the need for Latin America for a scientific education that is based on the economic problems of countries, whose wealth is mainly agricultural.

Martí's pedagogical thinking demands the elimination of the divorce that exists in education between theory and practice, study and work, intellectual work and the manual and to that effect, advocates the fusion of these activities in school education. From the triumph of the Cuban Revolution, all these ideas of José Martí on education become effective.

Cuban education has two fundamental objectives: The formative and the economic. The first seeks to develop a consciousness of producer of social goods; To create the conditions for eliminating the prejudices arising from the division between intellectual and manual labor; Eliminate intellectualism in teaching and foster interest in the surrounding world.

The second aims to integrate into the production and social work the capacity of hundreds of thousands of schoolchildren who, by adequately measuring the time of regular study and participation in production and cultural, aesthetic, sports and recreational activities, contribute in a way Specific to their own food subsistence, and to the production of material goods for society.

The principle of democratic participation of the whole society in the tasks of the education of the people. This principle exposes the democratic and popular character of Cuban education, which covers all areas of the country, both urban and rural, and also shows the participation of the people in its development.

The Cuban educational process has had the support of all social and nongovernmental organizations and institutions, all of which have had a great impact on the levels and quality achieved in the Cuban educational system.

This is particularly evident in the increasingly broader design of educational strategies, their control and decision-making, which reaches all levels of society, starting with the family, and local bodies of People's Power, To the National Assembly. The principle of coeducation and the school open to diversity. This principle guarantees to boys and girls, men and women access to all educational centers at all levels of education of the National Education System.

The gender approach in Cuban education.

Since 1959, in Cuba, the access of girls and women to educational processes is a fundamental right. It has been shown in a number of studies that the mother's schooling level is a variable directly associated with the learning levels of the sons and daughters, so it is considered of great importance to pay special attention to the education of the woman.

The gender approach is included in curriculum programs and gradually in textbooks, although they are still insufficient due to the need for inputs for new editions, and teachers have little training on this issue. To this end, the Ministry of Education (MINED) and the Federation of Cuban Women work together to promote actions such as research and promotion in schools of the gender approach, from the design of a non-sexist education that reaches the mode of education. Life of the school and the system of activities and relationships that gradually contribute to socializing and conforming the subjectivity of students.

In primary and secondary education, the leadership roles of student organizations predominate in girls and boys, which contributes to the development of important communicative, participation and management skills for future performance in their personal

and social lives. The country's social media have dedicated space to the dissemination of educational programs on gender relations aimed mainly at the family as a complement to its educational function. The principle of differentiated attention and school integration.

Cuban education works on the basis of an in-depth diagnosis of children and their families and their environment, and how it interacts with them, by differentiating attention from schoolchildren, according to their needs and possibilities, taking into account the Aid and stimulation that each requires, always promoting its maximum development and never exclusion or segregation in educational care.

In the school, which is the most important center of the community, there is the action of different educational agencies, which seek to mitigate the social effects beyond the end of education and promote the most favorable educational conditions for the full development of each individual, In their context and realities.

Increasingly in the Cuban school, treatment is promoted for children with special educational needs; In the particular case of those with disabilities, work is done so that they are educated in the natural context of primary school and that they are only in specialized educational institutions for the period of time required for their integration to another common center.

The principle of gratuity.

Teaching in Cuba is free at all levels. The State maintains a broad system of scholarships for all students and provides multiple study priorities to workers in order to achieve universal education (MINED, 2001). From the revolutionary triumph, education was one of the main purposes of the Cuban government and the state, the crisis of the

1990s demanded new goals, among them the effort to prevent the backwardness of the achievements until that moment. New alternative strategies were developed in this area, which helped to maintain the indicators that show the education of the current Cuban children.

It is recognized that children are the center of all educational work; the education given to Cuban children and adolescents is aimed at preserving and improving their rights of survival, development, protection and participation. In order to comply with the previous approach, strategies, programs and laws that benefit this sector are needed. In this case, it is important to make the following references on the education of Cuban children and adolescents.

Children are guaranteed by increasingly educated teachers (ideologically, ethically and culturally). The education of children constitutes the sector (after social security) that consumes most in the execution of the state budget. In this sector, it has always been the intention of a comprehensive education that attends to diversity with equity in access and opportunities, aspects that are evident with art schools, sports schools, and vocational schools. The benefit of Cuban education favors the 14 provinces of the country and the special municipality, particularly rural and mountain schools, contributes significantly to the seal of equity in the situation of the education of Cuban children.

The implementation of national programs has had the participation and integration of all agencies and organizations. These include those directed to food, nutrition, schools for health, prevention of accidents, education for a healthy and happy sexuality, etc.

Existence of doctors and nurses of the community incorporated into educational programs (Álvarez and Rodríguez, 2000).

All these guarantees offered by the educational system in Cuba, particularly in the school system, establishes "that education is a function of that paradigm that is essentially raised in what we have called" the new man ", which as a dialectic category must be A man in constant process of perfection, in constant change, in constant process of adaptation to the kinetic and technical demands of the time that it touches him to live, but man who must have like axiological invariant the honesty, the solidarity and the necessity of the work like Sense of life, where the consciousness of the producer prevails over consumer consciousness "(Borroto, 1998: 9).

It is important to consider as education not only the school system, but all factors that are a function of education in school institutions and other socialization scenarios. In this process must be involved and interrelated groups and institutions responsible for the education of boys and girls as; Families, pedagogical groups and community social agents.

For example; The development of sport and culture in Cuban children and adolescents has taken place in addition to schools, other sports, cultural and recreational institutions in the communities where teachers and specialists from both spheres teach.

School institutions have a great responsibility to educate and educate children, adolescents and young people in accordance with the material and human conditions that the Cuban educational system makes available to these functions, in order to provide the necessary elements for Individual and social development.

This responsibility is evident in the work of the pedagogical group in each school. Therefore, the school constitutes in the community an "agent of change in a positive sense and the proper interaction of all factors depends on the strength of the principles that underpin the work of the revolution and the achieved achievements" (Luna et al, 1996 in: Núñez, 2003: 233)

The school has the role of transformation agent in the community, and its social responsibility includes the attention to the family of the students, and in this way contribute aspects of education that favor the fulfillment of their educational function. This is one of the reasons why there must be a cohesive work of the school and the family. The school's attention to families is usually made collectively: in parent meetings, family education schools, home visits and individually, when it is considered that the attention should be directed specifically to a family by particular situations of Some students.

It is considered that the community constitutes an important space for educational work, here the mass organizations and the organs of the People's Power work, which in coordination with families and educational centers, have supported educational actions directed to different segments of the population. "The theoretical methodological value of the triadic school - family - community conception in the Cuban Educational System is that the educator feels, conceives the relationship between the processes that take place in his school and the community family environment as elements of self - direction in his work "(Núñez et al, 2003: 279).

This form of work gives the possibility of achieving greater achievements in education and individual and social behavior consistent

with the ethical and moral values of Cuban society.

Children and adolescents in situations of social disadvantage

As it is known, Cuban children benefit equally from the actions taken in favor of their development, however, a part of it, due to socioeconomic, family and other circumstances, require special attention and social protection. It refers to children in situations of social disadvantage.

The educational institutions in the communities as part of their social order, carry out preventive educational activities through different programs. In most cases, it is the teachers who for the first time identify the children at risk, through the use of diagnoses and characterizations.

Within the educational sector's strategy for preventive educational work in the communities has been an important contribution to the coordination and integration of the actions of the Council of Attention to Minors and the educational programs "Educate Your Child" and "For Life."

Its common objective is to preserve and defend the rights of children, adolescents and young people, and within that, the priority of those in a situation of social disadvantage, with behavioral disorders or dissociated from the system.

Schools have been gaining a central role in this work as coordinating centers of educational actions, starting from the conception of strengthening their role as the most important cultural centers of the community.

The group of children in situations of social disadvantage also includes those who require this attention for presenting behavior disorders, this activity is shared by the Ministry of Education and the Ministry of Interior, carry out prevention, evaluation and re-education

actions, as Cuban law regulates the care of these children, not only through the judicial and criminal courts of their mothers, guardian parents, but with an emphasis on their socio-psychological orientation and work with the family.

This creates different care systems such as the Centers of Orientation and Diagnosis; Centers of Evaluation, Analysis and Guidance of Minors, among others. These centers have teams of professionals and specialists from different disciplines, who study their problems, and look for alternative solutions to them.

All children with behavioral disorders are linked to the teaching process of the National Education System, when they leave the specialized centers, they are offered care aimed at their social reintegration and the follow-up of their reeducation.

Having as one of its objectives to prevent and correct the behavioral disorders and other risk situations of these groups, since 1987 and through legislative regulation, the Commissions of Prevention and Social Attention were created as coordinating mechanism of the Government for the prevention and social attention in Cuba.

The impact of the economic crisis

The impact of the economic crisis and the policies applied to its confrontation have generally affected the social situation of the country, although its effect has been differentiated in some areas of services and in certain sectors of the population. As for the former, there are spheres where, with some affectations, the achievements are maintained, such as education, health and social security (Díaz, E.1994). In other areas, such as food and housing, the greatest difficulties are concentrated. In relation to the second, there are sectors of society that have felt more strongly the effects of the crisis and which

present lower living conditions than the population of the country due to the persistence of the dissatisfaction of some basic needs.

However, changes in the 1990s caused changes in the structure of opportunities related to some risk conditions for families, causing a heterogeneity in the living conditions of the population. As a consequence of this situation, research was carried out with the objective of evaluating the impact in the population segments that, due to their characteristics, presented greater vulnerability to the change processes. Among them are the research on the family; Young; Children and adolescents; The beneficiaries of social assistance, among other social groups.

One of the population segments that has been most affected by this situation has been children, especially children who come from a population sector that has been studied by some authors since the 1980s and whose indicators Socioeconomic and socio-demographic, as well as other cultural and lifestyle aspects, differ from the average values of the population.

Children who grow up in families with these characteristics tend to have disorders in their behaviors and difficulties in learning. Relevant studies have focused on the problems of childhood, which have served to support more recent research. The National Commission on Prevention and Social Care (CNPAS), from its inception, addressed the study and the deepening about the minors that are in Schools of Behavior Disorders and Reeducation Centers.

The research presented above played an important role in subsequent studies on the subject of childhood with unfavorable social conditions. In this study, it was also found that when children were admitted to primary school, children from poor socioeconomic and

family backgrounds were not adequately cared for, and tended to be rejected by teachers and classmates. They rarely received the required pedagogical attention and were seldom selected for activities, thus reducing their chances of participation and social integration. The work of the school's educational team was weak. Teachers were unaware of the living conditions of these children.

This research had a second part carried out in 10 provinces, which consisted of an experience of priority and preventive attention of these students from the first degree. Three lines of action were tried: in-school pedagogy, teacher work with the family and community action on the family.

This experience showed that preferential attention by the teacher and the pedagogical group from the instructive and educational points of view, as well as the individual work of the teacher with the family through the periodic visit to the home, can significantly improve the school performance of These students, the home-school bond and the care of these children by their families. From this situation a Preventive Program of priority attention was structured to the children who present adverse socioeconomic and familiar conditions from the entrance to the school. Its main objectives are to prevent school failure and increase the social integration of these children and their families. It is also aimed at increasing the effectiveness and preventive political role of the school and its influence on the community.

Based on this study, the Ministry of Education (MINED) is currently developing the Preventive Program with the aim of providing them with preferential educational, school and community services to these children and their families.

In this case, the relationship between childhood, socio-economic conditions

unfavorable to their development and education is an important aspect for social research for transformation purposes. Participation in the educational and instructional process is considered the fundamental way to prevent situations of disadvantage, which are affecting this segment of the population.

All this, as a whole, contributes to the improvement of their quality of life.

In another hand it is very important to refer that in Cuba there are about 400 children without family protection living in institutions (homes for children without family protection). These are governed by the Ministry of Education, mainly through the addresses of Pre-school and Special Education. The State contributes human, material and financial resources so that the life in them is developed as close as possible to the conditions of a family home, with a reduced number of children (no more than 20) (UNICEF/Cuba 2015/Castillo).

The growing but still limited access to information and communication technologies opens a range of perceptions, interests and aspirations in the universe of Cuban children and adolescents (UNICEF/Cuba2015/Piedras). In the country, important investments have been made so that each school has computers to be able to develop in all children and adolescent's computer and communication skills.

There are several challenges for the Cuban State and Government to maintain, in some cases, and improve in others, the care of Cuban children and adolescents. For this, social policies, programs at local and community levels are designed, according to the needs of these population segments, which have been a priority in the country for nearly six decades.

Conclusions

At present, Cuba has a very favorable situation regarding the attention to Cuban children, adolescents and youth. Since 1959, this country has been an example in the attention and protection of these population groups, which has been a priority of the Cuban Government and State; This has allowed the results of the evaluation of indicators related to the quality of life of children to be similar to those of developed countries.

This dedication and protection has allowed a comprehensive development of Cuban children and adolescents. The design and implementation of various social policies, projects and programs have had very good results in the individual and social development of this population group.

However, the effects of the economic crisis that began in the 1990s caused changes in access to opportunities, which caused heterogeneity and inequalities in the living conditions of the population, which are related to some risk conditions for families.

One of the population segments that was most affected by this situation was Cuban children and adolescents, especially children, girls and adolescents who come from a population sector that has been studied by some authors since the 1980s, And whose socio-economic and socio-demographic indicators, as well as other cultural and lifestyle aspects, differ from the average values of the population: families in situations of social disadvantage.

These and other difficulties have been addressed through educational institutions, health care and social care at community level, fundamentally. There are still aspects that can be improved in relation to childhood and adolescence, but taking into account the

political will and the new projection of Cuba,
in later years it will be possible to have a better
quality of life for Cuban girls, boys and
adolescents. ■

REFERENCES

- Alvarez, Mayda; Rodríguez Inalvis, et al (2000) “Situación de la Niñez, la Adolescencia, la Mujer y la Familia en Cuba”. La Habana.
- Boroto, Lino (1998) La estrategia educacional de la Revolución cubana, ponencia presentada en el Congreso Internacional de la Asociación de Educación Comparada, Toronto, Canadá. 1999. En Enfoques Contemporáneos sobre Educación en América Latina. FLACSO, 2001.
- CEPDE-ONEI, Diciembre de 2013.
- Díaz, Elena (1994). Calidad de vida en Cuba: Efectos de la política norteamericana. , África América Latina. Cuaderno No.16 SODEPAZ, p, 13-33, Madrid.
- MINED (2001) La educación en Cuba a 40 años de la Campaña de Alfabetización. La Habana.
- Núñez, Elsa, et al (2003) La escuela y la familia en la comunidad: Realidad socioeducativa de hoy.. En Compendio de Pedagogía. La Habana.Editorial Pueblo y Educación. La Habana.
- Porro,Sofia (2006) Tesis en opción al grado científico de Doctora. “Infancia y desventaja social en Cuba: Propuesta de programa preventivo educativo para su inclusión social”.
- UNICEF/Cuba 2015/Castillo. Niñez y adolescencia. Estadísticas. Disponible en:
<https://www.unicef.org/cuba/adolescence.html>
- UNICEF/Cuba2015/Piedras. Plan de Acción de Programa de País (CPAP)
- Anuario Estadístico de Salud 2014 Indicadores de Educación en Cuba Indicadores de Salud Materno-Infantil Indicadores de Nutrición Materna El Desarrollo en la Primera Infancia en Cuba. Disponible en:
https://www.unicef.org/cuba/cu_resources_LairePrimeraInfanciaLibro.PDF

Role of Universities in the Creation of an Environmental Culture for Sustainable Development: Experiences of the University of Havana, Cuba.

Dr. Cristina Diaz Lopez

Within the framework of the Cultural and Educational Development Program that has engrossed the Cuban government for many years, the subjects of the environment and sustainable development have been two high priority issues as related to the institutional process of implementing a resulting environmental policy by including the handling of environmental problems to the country's developmental process and facing global challenges imposed by climate change.

As a part of this process, Article 27 was added to the Cuban Constitution in 1992, which states, "The State protects the environment and the country's natural resources. It acknowledges a close association between economic and sustainable social development in order to make human life more rational and ensure survival, the wellbeing, and safety of current and future generations..."

In 1994, the Ministry of Science, Technology, and Environment was established, and in 1997, the "National Environmental Strategy" and the "National Environmental Educational Strategy" were approved. The latter is a programmatic document which states the need for Cuban Higher Education to play a protagonist role in developing an environmental culture among our people as a premise to attain the goals and objectives of sustainable development.

The complex nature of the environmental problem requires comprehensive reflection where phenomena analyzed by completely separate fields of knowledge converge.

The complexity of the environmental problem includes taking natural and social phenomenon into consideration and within these, the cognitive, economic, political and ideological phenomenon (1).

The Cuban Ministry of Higher Education was created in 1976. Some of the Higher Education institutions comprising it have a long prior academic history, such as the University of Havana, established in 1728, Universidad de Oriente in 1947 and the Universidad Central de las Villas in 1952. The remainder were established subsequently

Regarding the University of Havana, the number of students in the different undergraduate programs has fluctuated in the last few years between 17,000 and 20,000. They receive curricular instruction and education on the environment, which has been getting progressively better since the Rio Earth Summit in 1992.

Furthermore, they receive environmental training and education through extracurricular and informal channels through university extension activities and some others promoted by the Federación Estudiantil Universitaria [University Student Federation] (FEU).

Regarding postgraduate activities, the inclusion of an environmental dimension into all Master's Degree programs and majors in Cuban Higher Education has been streamlined; and transversally including this dimension into research for doctoral dissertations is a priority.

University extension work, whose explicit objectives include reaffirming

environmental values in students, has included participation in hundreds of community projects in its latest courses. A large part of these projects was done jointly with provincial and national organizations and institutions. They recognize the positive impact the universities have on community work. They work successfully on increasing the efficiency when executing each project.

Overall, the Ministry of Higher Education has won a considerable percentage of the total awards granted by the Cuban Academy of Sciences in the last few years, and the percentage of those related to Projects that work on aspects more commonly related to natural and human environmental dimensions have slowly been increasing.

Starting in 2000, this Ministry established an award for “Applied result that has most contributed to the protection and improvement of the environment.” However, despite the achievements mentioned, there are still a series of problems that are common to almost all institutions of the Ministry of Higher Education. Some of the main problems are the following:

1. Limits to the creation of an environmental culture with a comprehensive focus on students, professors, and workers in general.
2. Insufficient mastery of environment-related topics by senior staff.
3. Limited influence in environmental management training of people in communities located in areas of influence of higher education institutions.
4. Unsuitable conditions of the physical environment at many higher education institutions.

The challenge then for Cuban higher education is how to design an educational strategy that allows professionals to be trained

with a solid environmental culture that makes it possible to understand environmental problems in a more general and holistic way.

At the same time, the strategy must allow, organically and comprehensively, for the community, the governments, administrations and the business sector to interact in order to transfer this culture to all sectors of society and get closer to a reality of sustainable development. (2) This way, we would have a comprehensive system in order to carry out this training process.

DEVELOPMENT

In the case of the Universidad de La Habana [University of Havana], expressing the political will of creating an environmental philosophy and culture in students, professors, and workers with a focus on a comprehensive system that transcends the framework of university activity and also contributes to the sustainability of social and economic development was the creation and restructuring of the Centro de Estudios de Medio Ambiente [Environmental Research Center] (CEMA).

The CEMA’s mission was to “Be a place for reflection, exchange, collaboration, and interdisciplinary debate on environmental issues that encourage the development of an environmental culture in and outside the university, playing a protagonist role in coordinating and promoting actions in the fields of environmental education and scientific research.” Its main characteristics were its interdisciplinary nature, voluntary participation, inter-center collaboration, compromise, and flexibility.

It was made up of a small group of individuals (6) who perform administrative and organizational duties and a panel of directors

comprised of representatives of schools and research centers of the university itself (composed of chemists, physicists, biologists, geographers, social communicators, psychologists, philosophers, jurists, mathematicians, among others).

Its structure was designed to be organic, matrical, flexible, and with very little hierarchical structure; it would be organized by projects, whose main management component was the coordination of activities and cooperation among its members.

Its essential duties included the coordination and promotion of actions in undergraduate and postgraduate teaching and scientific research that fostered the development of this environmental culture with a holistic approach. It therefore associated with other institutions in and outside the country that were associated with environmental issues in order to both increase its possibilities and identify the problems it would address.

The results the center obtained while it was in existence allowed for the creation of an Environmental Network at the University of Havana that has continued working on these goals to the present and have expanded and diversified its scope in an outside of the university.

The premise, then, for preparing the University of Havana's Environmental Strategy was initially to create the CEMA, because the development of a new way of thinking in order to face the environmental problem in a more comprehensive way required new nontraditional ways of organization that would allow for:

- Organic cooperation among team members
- Suppressing barriers between different scientific spheres

- Communication among different fields of knowledge (3)

This is essential in order to face the environmental problem as a complex one.

The BASES for preparing the strategy were the following:

1. Emphasize the ethical component of environmental problems and their solution.
2. Undergraduate studies:
 - The main role of the student as the object and subject of all actions carried out.
 - Using the existing curriculum of each degree program without creating a new one. Only introducing certain classes in those cases where it was deemed appropriate. Addressing the environmental problem through the "environmentalization" of the classes contained in the teaching curriculum.
 - Designing activities that contribute and are consistent with the students' environmental education and that address all action areas, i.e., classroom activities, research work, university extension, within their specialty.
 - Design multidisciplinary activities that allow them to improve the understanding of these problems and that supports the need of a multi and interdisciplinary cooperation in order to solve them.
3. Postgraduate studies:
 - The main role of the subject matter will be addressed with a comprehensive approach.
 - Emphasis on the interdisciplinary nature as a focal point for consolidating knowledge given in undergraduate teaching and to effectively move closer to real solutions to the problems detected.

To illustrate the materialization of this strategy, some examples of specific actions taken, and the results obtained, are outlined below.

GENERAL ACTIONS: UNDERGRADUATE

- Including an environmental dimension to educational strategies of each school, in order to have an institutional and political instrument available to ensure development of this environmental culture in each area.
- Preparing an environmental strategy for each school, research center and other main areas of the university in order to guarantee consistency and complementarity in investigative and educational actions that are designed for students and professors, as well as to guarantee that the work done by the university extension has an explicit environmental component.
- The existence of a university extension program appropriate for the most current notions of this activity, considering it an all-encompassing function as it is present in each one of the structural links of the University.
- Using the Value Education Project carried out by the Center for Studies for the Improvement of Higher Education in order to reinforce the creation of attitudes and values in students and professors that contribute to focusing on the environmental problem from an ethical point of view.

Educational strategies have been prepared and applied as part of its research, which are geared toward boosting the development of values students on different curricular levels: class (4, 5); academic year (6), and major (7).

- The creation of optional or elective courses, such as Environmental Sociology, Environmental Law, Cuban Biodiversity,

Communication and Environment, etc., which will be offered to students in different specialties.

- The creation of a National Security class, which will cover the subject of Risk Management
- The creation of a Bioethical Committee at the university as a center for reflection and debate, where issues of Bioethics and Environment have been and continue being a significant point of analysis. Students and professors along with professionals from other institutions participate in these debates.

POSTGRADUATE

- Introduction of a Master's Degree in Comprehensive Management of Coastal Areas with a marked interdisciplinary and comprehensive character to deal with research related to environmental and other types of problems associated with these areas. This has been an important experience for professors and postgraduate students.
- The design and introduction of a Master's Degree in Environment and Development, which will have the same approach as that in the previous case.
- Introduction of a Master's Degree in Population, Environment and Local Development.
- Design and introduction of the Master's Degree in Caribbean Studies (discusses climate change and population and environment in the Caribbean).
- Implementation of a series of community participation projects in different schools and research centers made up of students and professors with different specialties and that largely respond to research areas that sustain

interdisciplinary master's degrees that have been designed.

- Design and implementation of a training program in environment for government officials and directors and the Havana City government, which allows them to operate better and be more successful in environmental governance for sustainable development. This program has included a Master's degree and a diploma in Public Administration, diploma in Government Management and courses and seminars on different topics as well as a workshop for refining the province's environmental strategy.
- Preparing material for "Municipal Management and Environmental Strategies:
- Participation in the Environmental Training Network of the Ministry of Science, Technology, and Environment, where the university is responsible for formal training of the officials from this ministry as well as from the municipal and provincial government in Havana City.

SOME EXAMPLES OF OTHER ACTIONS:

- Classes for workers in administrative areas at the University of Havana and the City's Community Services
- The "We Believe in Hope" project. It involved eight schools at the basin of Havana Bay.
- The design of educational games for children and adolescents that were implemented in some primary and secondary schools within the community.
- Activities for promoting environmental education in student residences targeting students and workers.

- Organization of the Water, Drought, and Desertification Workshop.
- Organization of the Environment and Social Sciences Workshop.
- Creation of Environmental Professorships on Municipal University Campuses
- Strengthening alliances with national agencies, especially the Environmental Agency
- Increasing participation in international projects dealing with the adjustment and mitigation of climate change.

SOME SPECIFIC ACTIONS CARRIED OUT BY THE SCHOOL OF CHEMISTRY AT THE UNIVERSITY OF HAVANA THAT ILLUSTRATE DIFFERENT FACETS OF THE STRATEGY

1. Introduction of the Environmental Chemistry course during the last year of the major in order to further examine the role of chemicals in the protection and prevention of problems related to environmental contamination that may be associated with professional performance.
2. Gradual introduction in laboratory work of how to treat the generated waste. Studying alternatives for substituting the most toxic or dangerous reagents, which includes a preliminary economic analysis. All the work is conducted by the students themselves.
3. Establishment of an Environmental Chemistry Section within the Student Scientific Symposium held every year where round tables have been included with a highly critical analysis of how the major has created or not created an environmental culture in the profession.

The experience of the Environmental Chemistry course has provided very encouraging results in

the preparation of students, who have been able to prepare, present and debate works, with more and more rigor, about how to face the challenges of climate change in the Caribbean, mainly on small islands such as Cuba or to evaluate the environmental impact of research conducted in its graduate or diploma work to name only two examples. The quality of the work submitted has allowed some to be selected for presentation at international events such as the International Pre-Congress Workshop of the Caribbean Studies Chair. (8)

CONCLUSIONS:

The role of universities in the challenge of sustainable development is to contribute to shaping men with a culture and social attitude in which their focus on environmental problems does not translate into actions that are determined by professional, labor, or circumstantial pressure, but where the environment and respect for the environment have been established as a value, as a behavior pattern, as a personality trait.

Only then will we be able to face the problems related to development and respond to the Objectives of Sustainable Development and Development Program through 2030. How this culture is attained will be determined by the economic, social, and political context within which each university handles the issue. This essay has addressed some of the actions taken on by the University of Havana, Cuba, which, in its

commitment to society, is in favor of training qualified personnel who are capable of producing new knowledge that is necessary to foster a true environmental social movement. ■

REFERENCES

- (1) Delgado, C. (2002). "Hacia un nuevo saber. "Toward a New Knowledge"]. Cuba. Inédito [Unpublished]
- (2) Díaz, C., Mieres, A., Henriques R.D., Rodríguez, M., Rial, R., Gonzalez V. (2002) "Papel de la Universidad en la creación de una cultura ambiental para el Desarrollo Sostenible" ["The Role of the University in Creating an Environmental Culture for Sustainable Development"]. Congreso Internacional del Medio Ambiente y Desarrollo Sustentable [International Environment and Sustainable Development Congress] 2002, Viña del Mar, Chile.
- (3) Henriques, R.D. (2002). "Nuevo diseño de un Centro de Estudios Universitario" ["A New Design for University Research Centers"]. Memorias 3ª Convención Internacional de Educación Superior [Proceedings of the 3rd International Higher Learning Convention], La Habana, Cuba.
- (4) Zumbado, H. (1999). "Formación y desarrollo de intereses profesionales y de la responsabilidad del estudiante universitario a través de la asignatura Análisis de los Alimentos II ["Formation and Development of Professional Interests and the Responsibility of the University Student through the class Analysis of Food II]. Tesis de Maestría [Master's Dissertation]. CEPES. Universidad de La Habana.
- (5) Iglesias, M. (2001) "Estrategia educativa para el desarrollo del interés profesional a través de la asignatura Ética Médica" ["Educational Strategies for Developing a Professional Interest through the Medical Ethics class"] Tesis de Maestría [Master's Dissertation]. CEPES. Universidad de La Habana.
- (6) González, V. y Ameneiros, J. (1999) "La orientación profesional como estrategia para el desarrollo del interés profesional y la responsabilidad del estudiante en su formación profesional" ["Professional Guidance as a Strategy for Developing Professional Interest and the Responsibility of the Student in their Own Professional Education"]. Informe de Investigación [Research Report]. CEPES. Universidad de La Habana.
- (7) González, V. (2000) "La Orientación Profesional en la Educación Superior" ["Professional Guidance in Higher Education."] Monograph. CEPES. Universidad de La Habana.
- (8) Díaz C., Sánchez G., Valdés T., Rodríguez D., Hernández Y., (2012). "Experiencias recientes de la formación ambiental en la carrera de Lic. en Química de la Universidad de La Habana" ["Recent Experiences in Environmental Education in the Chemistry Undergraduate Program at the University of Havana."]. Taller Pre evento "La Universidad y los retos ambientales: cambio climático y desastres naturales en el Gran Caribe" [Pre-event Workshop "The University and environmental challenges: climate change and natural disasters in the Greater Caribbean"]. VI Conferencia Internacional "Cuba y el Caribe: 40 años de relaciones" [Sixth International Conference "Cuba and the Caribbean: 40 year relations"] La Habana, 5-7 diciembre 2011.

Nonnegative matrix factorizations: Ideas and applications

Marta Lourdes Baguer Díaz-Romañach

This article is not intended to conduct an exhaustive study of the state of the art on the Non-Negative Matrix Factorizations (NMF) nor to present all the possible extensions of its general model or ways of solution, it is only intended to motivate the reader to pay attention to a versatile tool for scientific computing that can be adapted to solve a wide range of problems and that is still in development.

When one talk about the NMF, some notes of Gene Golub take us back to the 70'sⁱ. These factorizations shall be understood, for many reasons, as a "philosophy" to address the solution of different problems with nonnegative data, taking into account the relationship between the parts and the whole as seen by Lee and Seung,ⁱⁱ more than a factorization in the mathematical sense like, for example, the LU , the QR or the SVD . This article will show some aspects that are important to begin to get into the study of NMF.

When the Linear Numerical Algebra is explained, it begins by presenting the LU factorization. This factorization looks for two regular matrices, L , lower triangular, and U , upper triangular, so that the system of linear equations $Ax = b$, becomes easier to solve. In this factorization the columns of the matrix A can be expressed as a linear combination of the columns of L .

That is, if we consider $A = [a_1, a_2, \dots, a_n]$, $L = [l_1, l_2, \dots, l_n]$ and $U = [u_1, u_2, \dots, u_n]$, then, each column of the matrix A , can be written as $a_i = u_{i1}l_1 + u_{i2}l_2 + \dots + u_{in}l_n$. In this way we have obtained a basis L of the subspace generated by the columns of the matrix A

without other requirements than the linear independence of the columns. For ill conditioned, rank deficient or simply rectangular matrices, it is important to demand the orthogonality of the basis. This is closely related to the control of the propagation of the error. In those cases, a QR factorization or some variant, as the $RRQR$ (rank revealing QR) can be computed.ⁱⁱⁱ

The Singular Value Decomposition (SVD) is not simply a matrix factorization. The SVD helps us to understand the main properties of the matrix and finds application in innumerable areas. Only the fact of being able to handle in floating point arithmetic the concept of the numerical rank of a matrix is an important achievement. When obtaining a decomposition of the matrix in singular values, orthonormal basis are obtained both for the subspace generated by the columns and for the subspace generated by the rows of the matrix $A \in \mathbb{R}^{m \times n}$ ^{iv}.

A classic formulation is when we express $A = U\Sigma V^T$, where the orthogonal matrices $U \in \mathbb{R}^{m \times m}$ and $V \in \mathbb{R}^{n \times n}$ contain the corresponding basis and $\Sigma \in \mathbb{R}^{m \times n}$, is a diagonal matrix and contains the singular values σ_i , with $\sigma_1 \geq \sigma_2 \geq \dots \geq \sigma_r > 0$, and r is the rank of the matrix. An important issue is that, it is not necessary to store the complete U and V matrices but only the r columns of the matrices U and V .

The matrix A can then be decomposed into $A = U_r \Sigma_r V_r^T = A_r = \sum_{i=1}^r \sigma_i u_i v_i^T$, a weighted sum of matrices of rank 1, $u_i v_i^T$. It can be shown that one of the main properties of the SVD is that by making use of this expansion, we obtain the best approximation of the rank k of A in

Euclidean norm, that means that,
 $A_k = \sum_{i=1}^k \sigma_i u_i v_i^T$, minimizes the $\|A - A_k\|_2$ over all possible approximations A_k of range k , $k \leq r$.
^v

^{vi}However, in our era of large volumes of data, numerical methods that allow dealing with these large data sets are widely used. In many applications the data is non-negative or positive. It is desired to have a processing tool that allows an interpretation of the results according to the problem. For example, if we have a grayscale image, the coefficients of the associated matrix have values ranging from 0 (black) to 255 (white). When computing the *SVD*, negative coefficients can appear in matrices U and V . In this case it is impossible to show those matrices as images.

There are other factorizations that are successfully used in Scientific Computing such as Principal Component Analysis (*PCA*)^{vii} and Independent Component Analysis (*ICA*)^{viii} to mention just some of them. In these factorizations, the components of greater variance (*PCA*) stand out, which allows the researcher to obtain the main axes with which the data can be represented.

These methods also reduce the dimension of the problem but their factors could be positive or negative and according to that they do not have an interpretation from the point of view of the data if these only have non-negative or positive values. This was the main motivation to consider the problem of obtaining factorizations with positive matrices in the mid-1990s when Paatero and Tapper published a model for processing environmental data^{ix}.

However, when Lee and Seung publish their works^x and is when *NMF* really start to have great popularity. Despite many researchers

have been working on this topic for more than 20 years, it still constitutes a very active area of work and variants that adapt better to each application continue to appear in the scientific literature.

1. The general model for the Nonnegative Matrix Factorizations and some considerations about its solution

1.1 The general model for the Nonnegative Matrix Factorizations (NMF)

Given a non-negative matrix $Y \in \mathbb{R}^{I \times T}_+$ ($y_{it} \geq 0$, or equivalently $Y \geq 0$) and a reduced internal rank or dimension J , $J \leq \min(I, T)$, it is required to find two nonnegative matrices $A = [a_1, a_2, \dots, a_J] \in \mathbb{R}^{I \times J}_+$, and $X = B^T = [b_1, b_2, \dots, b_J]^T \in \mathbb{R}^{J \times T}_+$ so that their product approximates the matrix Y as good as possible, *i. e.* $Y = AX + E = AB^T + E$ where the matrix $E \in \mathbb{R}^{I \times T}_+$ represents the approximation error.^{xi}

The factors A and X can have different interpretations in different problems. For example, in image segmentation, A is the matrix of the basis and X is the matrix of the weights. In the standard model of NMF the non-negativity of the matrices A and X is assumed as constraints. However, one could simply write $Y^T \approx X^T A^T$ for which the sense of basis and weights is relative.

The general model can be expressed as a special form of a bilinear model, similar in a certain sense to the case of the *SVD*, in which $Y = \sum_{j=1}^J a_j \circ b_j + E = \sum_{j=1}^J a_j b_j^T + E$, and where the operator \circ denotes the external product of two vectors. As in the case of the *SVD*, an approximation of the non-negative matrix Y can

be obtained as the sum of matrices of rank 1, $a_j b_j^T$. If the decomposition is exact ($E = 0$), then it is named Non-negative Rank Factorization (NRF)^{xii}. The rank J or internal dimension is also called a nonnegative rank and is denoted by $rank_+(Y)$ ^{xiii}. The rank J satisfies $rank(Y) \leq rank_+(Y) \leq \min\{I, T\}$.

In general, the rank J usually satisfies $J \leq \frac{I \times T}{I+T}$ [10]

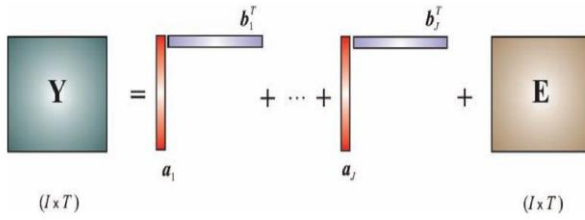


Figure 1: Classic model of NMF

In Figure 1 taken from^{xiv}, page 9, the structure of the factorization can be observed.

It is not difficult to notice that an NMF does not have to be an NRF. Non-negative matrices cannot always be found such that factorize the Y matrix in an exactly way or that the matrix $E = 0$. This is due, among others, to the approximation errors (rounding) that are generated and propagated in the calculations in a finite precision arithmetic.

To start the factorization process three fundamental questions must be answered. The first is related to the NMF model that will be used, this depends on the characteristics of the problem being solved or the type of the data. NMF have been adapted to many applications.

Choosing the model involves selecting the cost function to be minimized and the additional constraints to be imposed to the matrices, as we will see later. In this work we present some of the applications in which the Images Group of the University of Havana is

currently working and the models that are being studied.

The second question is related to the dimension or rank of the matrix J , $J \leq \min(I, T)$, or also known as internal dimension. Of course, this choice has a lot to do with the a priori knowledge of the problem to be treated. NMF are considered methods of dimensionality reduction so that this choice is crucial both for the appropriate modeling of the problem and for obtaining the solutions. The rank should be set to address the solution of the problem. Several approaches to determine the rank of the matrix appear in the literature. Several authors prefer the use the SVD ^{xv}. Another approaches suggest to obtain the graph of the singular values and select the range after observing when the graph has an elbow. This fact is related to the theory of discrete ill-posed problems and the regularization of solutions that is very well studied in^{xvi}. The Images Team of the University of Havana is studying a criterion proposed in^{xvii} to compare the solutions with the use of the SVD . Other authors have agreed that a suitable variant is the use of heuristics based on populations as in^{xviii}.

The third question is related to the initialization of the matrices depending on the model to be used. It has been shown that the algorithms that are used to find the matrices are sensitive to the initialization. The convergence and the speed of convergence of the algorithms may be affected by the initialization and with this, of course, the quality of the solutions. To answer this question we could also cite many works. The most intuitive ideas are random initializations. These in general do not take into account the characteristics of the problem. Other works propose to use population-based heuristics

^{xix}or strategies based on the *SVD* of the known data matrix^{xx}.

A very general scheme of a solution strategy would be:

Model selection and cost function.

Determination of the internal rank or dimension.

Initialization of the matrices according to 1.

Choose a solution method.

Estimation of the approximation error.

1.2 Algorithmic ideas for the solution of NMF

The general classical problem to be solved as it appears in 1.1 is:

Known $Y \in \mathbb{R}^{I \times T}_+$ the data and a rank $J, J \leq \min(I, T)$, find $A = [a_1, a_2, \dots, a_J] \in \mathbb{R}^{I \times J}_+$, and $X = B^T =$

$T^{J \times T} + E$ where $E \in \mathbb{R}^{I \times T}_+$ represents the approximation error $[b_1, b_2, \dots, b_J] \in \mathbb{R}_+, Y = AX + E = AB$

This is a nonlinear optimization problem with unknowns A and X and nonnegative constraints (inequality constraints). It is not always possible to find the matrices that exactly factor Y nor to know the error matrix E . In general, the problem of finding two matrices A and X is raised. That minimizes a measure of

"distance" (according to the function of cost that is used) between the data matrix and the product AX .

The approximate problem of NMF, $Y \approx AX$, corresponds to minimizing some measure of distance, divergence or measure of dissimilarity. This could be formulated as, find A and X , such that they satisfy $\min_{A \geq 0, X \geq 0} \|Y - AX\|_F$, where $\|\cdot\|_F$ represents the Frobenius norm, $A_{I \times J}$, $X_{J \times T}$ and $A \geq 0, X \geq 0$ or as it is usually denoted $D_F(Y|AX) =$

$\frac{1}{2} \|Y - AX\|_F^2$, which also refers to the Euclidean distance^{xxi}. This measure is the most simply and frequently used. The Frobenius norm,

$\|A\|_F = \sqrt{\sum_{i=1}^I \sum_{j=1}^T |a_{ij}|^2}$, can be equivalently written as $\sqrt{\text{tr}(A^T A)} = \sqrt{\sum_{i=1}^{\min(I,T)} |\sigma_i^2|} = \sqrt{\sum_{i=1}^I |a_j|^2}$, with a_j the columns of A .

Factors A and X are sought in other matrix spaces, in particular in $\mathbb{R}_+^{I \times J}$ and in $\mathbb{R}_+^{J \times T}$. For this reason, the determination of the rank has a special influence on the solution, since it determines the search space. It is important to emphasize that the function to be minimized (objective or cost function) is convex with respect to the elements of matrix A or with respect to the elements of matrix X but not with respect to both at the same time.

Another widely used measure is the generalized Kullback-Leibler divergence (I-divergence):

$$D_{KL}(p||q) = \lim_{\alpha \rightarrow 1} D_A^{(\alpha)}(p||q) = \sum_i \left(p_i \ln \left(\frac{p_i}{q_i} \right) - p_i + q_i \right), \quad \frac{0}{0} =$$

From

$p \ln(p) \geq p - 1$ follows that the I-Divergence takes non-negative values and it vanishes if and only if $p =$

q .

As a side effect, very often, the matrices A and X are sparse. An interesting idea could be explicitly control the sparsity of the matrices. In^{xxii} some sparseness criteria are presented that can be imposed as constraints in the model.

Three main strategies are used to obtain the matrices in the NMF.

Alternating Least Squares (ALS).

Descent methods.

Updating rules.

As is usual in Mathematics, when dealing with a non-linear problem, the possibility of linearizing is analyzed. A very natural idea emerges that gives rise to the Alternating Least Squares^{xxiii}. The idea is to initialize one of the matrices, and this would be related to the third question of 1.1, and optimize with respect to the other.

The problem is solved considering the other matrix as the variable and in the next step the calculated solution is taken as initialization for the matrix and optimized with respect to the first matrix. This is an alternating procedure and the advantage is that each step is solving a linear Least Squares problem with inequality constraints (non negativity) with convex objective function for which there are methods such as, for example, Lawson and Hanson^{xxiv}.

The general idea of the ALS is the following^{xxv}: Initialize the matrix A , $A^{(0)}$ randomly or using any other strategy.

For $k = 1, 2, \dots$, until satisfying a stopping criterion

Solve $\min_{X \geq 0} \|Y - A^{(k)}X\|$; $X^{(k)}$
(1)

Solve $\min \|Y - AX^{(k)}\|$; $A^{(k+1)}$ (2) $A \geq 0$

As it is observed, the solution of a non-linear optimization problem has been replaced by the solution in each step of two linear problems with constraints.

Another way to describe this algorithm appears in^{xxvi} and is as follows:

Initialize A randomly or with any other strategy. Estimate X of the matrix equation $A^TAX = A^TY$ and solve the problem

$\min_X D_F(Y \| AX) = \frac{1}{2} \|Y - AX\|_F^2$ with fixed matrix A .

Assign all the negative coefficients of X the value 0 or a chosen small positive value ε .

Estimate A of the matrix equation $XX^TAT = XY^T$ solving the problem

$\min_X D_F(Y \| AX) = \frac{1}{2} \|Y^T - X^T A^T\|_F^2$ with fixed matrix X .

5. Assign to all the negative coefficients of A the value 0 or a chosen small positive value ε .

This procedure can be rewritten as follows: $X \leftarrow$

$$\max\{\varepsilon, (A^T A)^{-1} A Y\} = [A^\dagger Y]$$

+

$$A \leftarrow \max\{\varepsilon, Y X^T (X X^T)^{-1} A Y\} = [Y X^\dagger] +$$

where A^\dagger is the Moore-Penrose pseudoinverse^{xxvii} of A , ε is a small constant (often 10^{-6}) to force the coefficients to be positive.

In the Alternating Least Squares, however, the convergence to a global minimum is not guaranteed, not even to a stationary point, only to a point at which the objective function stops decreasing. This procedure can be improved as can be seen in Chapter 4 of^{xxviii} It is interesting to notice that the NMF can be considered as an extension of the Non-negative Least Squares (NLS), which is a particular case of the Least Squares with inequality constraints (LSI) as described below:

Given a matrix $A \in \mathbb{R}^{I \times J}$ and a data set $y \in \mathbb{R}^I$, find a non-negative vector $x \in \mathbb{R}^J$ that minimizes the cost function $J(x) = \frac{1}{2} \|y - Ax\|_2^2$, that is, ,
 $\min_{x \geq 0} \frac{1}{2} \|y - Ax\|_2^2$, subject to $x \geq 0$.

In^{xxix}, the problem of Non-negative Least Squares is formulated as a particular case of Least Squares with inequality constraints (LSI). If the matrix A has full rank then we are in the presence of a strictly convex problem and the

solution is unique for any vector y and can be obtained in polynomial time.

Another kind of methods can be used to solve NMF, the descent algorithms. These algorithms choose a descent direction to move looking for a next solution that successively improves the values of the objective function.

The methods of the projected gradient are descent methods. This algorithms update the approximation to the solution x^k building the x^{k+1} as follows:
 $x^{k+1} = x^k + s^k(\bar{x}^k - x^k)$, where $\bar{x}^k = P[x^k - \alpha^k p^k]$ here $P[\]$ denotes the projection in the set of solutions, $s^k \in (0,1]$ is a step size, α^k is a positive scalar and p^k is the direction of descent. Using the ideas several methods can be constructed taking the appropriate descent directions and the rules to obtain the step size. For more information on this type of methods see^{xxx}.

The Updating rules can be obtained considering an objective function and trying to solve the problem^{xxxi}.
 For example, if the objective function is minimize the Euclidean norm between Y and AX , i.e.

$$\min_{ij} \|Y - AX\|^2 = \min \sum_{ij} (y_{ij} - (AX)_{ij})^2$$

and the rules that derive from that are:

$$x_{pj} = x_{pj} \frac{(A^T * Y)_{pj}}{(A^T * AX)_{pj}}$$

$$a_{ip} = a_{ip} \frac{(Y * X^T)_{ip}}{(AX * X^T)_{ip}}$$

1.2 Initialization of the NMF

The initialization of the matrices in the NMF have a direct influence in the solution and that is why the solutions depend strongly on that. Bad initializations produce slow convergence. As already explained the objective function of the ALS is not convex in both variables although it is strictly convex in one variable, for example in A or X and the algorithm can stop in a local minimum.

The problem of initialization can be even more complex if there is a particular structure of the factorization, for example, in the *symNMF* or the *triNMF* or if the matrix is large.

In^{xxxii} it is proposed to follow the following procedure:

Build a search algorithm in which the best initialization is found in a space of R pairs of matrices. Frequently the beginning of this procedure can be with randomly generated matrices or take them as the output of a simple ALS algorithm. The R parameter usually constitutes the necessary iterations in which 10 to 20 are considered enough.

Run a specific NMF algorithm for each pair of matrices with a fixed number of iterations (10 to 20 are also considered enough). As a result, we obtain R pairs A^R, X^R , from estimates of initial matrices.

Select the pair A^{Rmin}, X^{Rmin} , that is, those with the lowest evaluation of the objective function as initialization for the factorization.

In^{xxxiii} an implementation of this procedure is presented, the Algorithm 1.2. To read about the use of genetic algorithms used to perform the initialization in NMF, see^{xxxiv} and^{xxxv}.

1.3 Stopping criteria

Different stopping criteria can be considered for the algorithms used to calculate the NMF. Some of them are listed:

The stop function finds the zero or a value below a threshold ε prefixed, for example:

$$D_F^{(k)}(Y \parallel \hat{Y}^{(k)}) = \|Y - \hat{Y}^{(k)}\|_F^2 \leq \varepsilon.$$

In the iterations it is observed that there is no improvement in the minimization of the cost function, for example,

$$D_F^{(k+1)}(\hat{Y}^{(k+1)} \parallel \hat{Y}^{(k)}) = \|\hat{Y}^{(k)} - \hat{Y}^{(k+1)}\|_F^2 \leq \varepsilon \text{ or } \frac{|D_F^{(k)} - D_F^{(k-1)}|}{|D_F^{(k)}|} \leq \varepsilon.$$

There is only a small change in the update of factors A and X .

The maximum number of iterations is exceeded.

About another stopping criteria can be read in Appendix 5.A of^{xxxvi}.

2. Three selected applications of the NMF

NMF have been used as a solution model in different areas, for example, signal and image processing, as clustering methods, in text mining and many others. In this section some of the applications in which the Images Group of the University of Havana is currently working are presented.

2.1 Image segmetation: Mamographies and Colposcopies

The segmentation of images viewed from the perspective of the clustering algorithms can be considered as a semi-supervised technique. This task of image processing has been addressed in the literature with various strategies and is one of the first steps in the processing of images after the improvement of contrast, elimination of noise or some other necessary preprocessing depending on the appearance of the images to be treated.

In this paper 2D images are considered and the adjacency matrix associated with the similarity graph, where the information of the pixels and their neighbors can be represented.

Depending on the application, information of similarity or dissimilarity can be represented. In^{xxxvii} different graphs are studied with information of similarity between pixels (ε -*neighborhood*, *knn*, *knnmutuo* and *complete*). The introduction of $k \times k$ superpixels constructed under certain considerations is also studied so that they represent the best possible local information and the dimension of the problem is reduced. The fundamental idea of segmentation is to achieve a new representation of the image so that it can be interpreted better.

We will consider that in our images we do not have overlapping objects so that the segmentation can be seen as obtaining a partition in disjoint subsets whose union constitutes the complete image. Seen that way we take the definition from^{xxxviii}:

Definition 1: Let u_0 be an image on a 2-D, Ω domain. Segmentation is defined as the process of finding a visual meaning to u_0 partitioning the domain $\Omega = \Omega_0 \cup \Omega_1 \cup \dots \cup \Omega_N$ Ω_i : an object of the image $i \geq 1$.

The term segmentation covers a wide range of processes through which the division of the image into different disjoint regions is obtained based on a certain homogeneity of these.

Segmentation has been treated using threshold-based methods, graph-based methods (hierarchical segmentation), methods based on the recognition of edges or shapes, methods of growth of regions, those based on grouping algorithms and mathematical morphology. The success of many of them lies in the a priori information of the image, the definition of the

thresholds, the seeds or centroids or the type of structuring element to be used. For a review on these strategies see^{xxxix} and the literature cited there.

In the development of tools for the efficient imagenological diagnosis of breast cancer (mammography images) or cervix cancer (colposcopy), the segmentation of this type of images acquires special utility, as injuries can be marked and related information can be obtained extracting the corresponding features. These tools must be able to process a large number of images in real time, so that the dimension of the problem to be treated must be taken into account seriously.

The spectral segmentation based on the analysis of the eigenvalues of the Normalized Laplacian, for example, among other equivalent strategies, in general obtains very good results but they are expensive processes from the computational point of view. Because of this, approaches aimed at reducing the dimension of the problem have been widely treated in the literature.

Figure 2 of^{xl} shows a result of the studies conducted in the segmentation of mammographies based on the information of the spectrum of the Normalized Laplacian Normalized of the adjacency matrix associated to the graph that contains the information of the image. In these works the superpixels are introduced following several strategies as a way of reducing the dimension of the problem and the results are compared using several types of similarity graphs (ϵ -neighborhood, knn , $knnmutuo$). The experiments of these works were carried out with the images from the INbreast Database^{xli}.

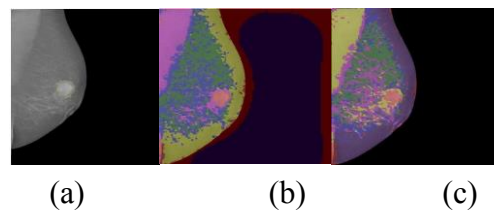


Figure 2: In (a) the original image of INbreast with the marked lesion is shown, in (b) the segmentation obtained without superpixels and in (c) with superpixels ^{xlii}.

In^{xliii} the equivalence relation between the NMF, the spectral grouping and K-means is studied. Once the applications with the spectral segmentation are carried out, the study will be extended now to the use of the NMF in its classical model and to the model that includes sparsity and orthogonality constraints.

Different ways are considered to initialize the matrices and to define the internal rank or dimension of the matrices, among them the criterion proposed by the group in ^{xliv} to obtain a good sparse approximation of large and dense matrices. The definition of the internal rank is directly related to the number of groups or clusters, so it is very important to use an appropriate strategy.

The study is also performed for Colposcopy images. The fundamental challenge in these images is the preprocessing in which problems such as the elimination of brightness, uneven lighting and the different appearances that these images present must be solved.

2.2 Removing the specular reflection in Colposcopies

Colposcopy images (Colposcopies) are taken with a Colposcope that has a lens with a light. Colposcopies of cervix have an annoying effect of brightness in some areas (the wettest) that affects the proper processing of the image.

The values of the pixels of brightness or specular reflection correspond to peaks of intensities of white in the histogram that are unreal and also do not allow the adequate inspection of the image by the doctor.

In the preprocessing of these images one of the first steps is precisely the removing of the specular reflections. To eliminate this effect it is necessary to detect the brightness pixels. Three algorithms were studied to obtain the masks (algorithms that mark the pixels). The following figure shows a colposcopy image with the brightness pixels marked.

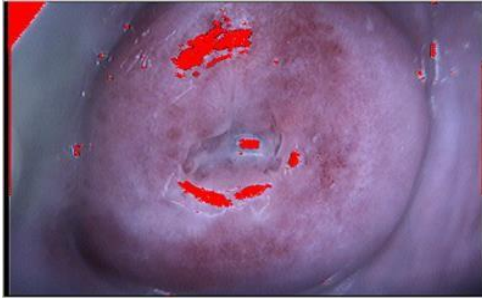


Figura 3: Mask obtained using a threshold $0.85 * Int_{max}$ (see^{xlvi})

Once detected and marked the pixels are removed from the image and algorithms are used that that performs a restoration approximately in those areas. Three procedures were also studied to obtain the restored image.

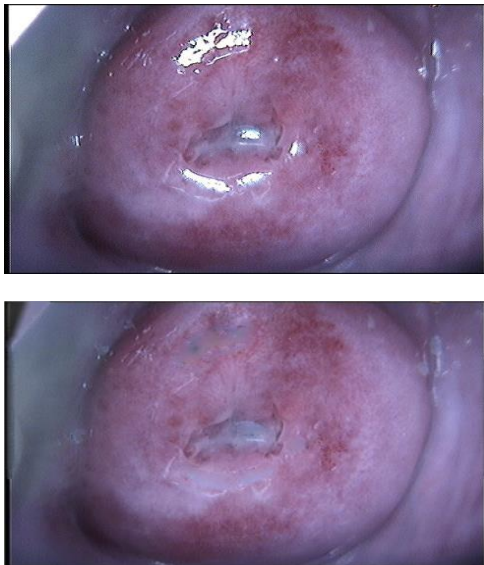


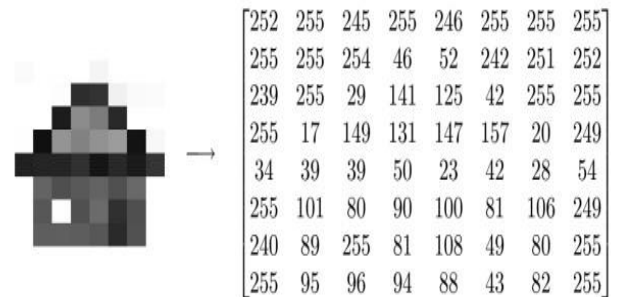
Figura 4: Results after carrying out the restoration

The results were validated qualitatively using the experience of the doctors. In the previous figure the result of one of the studied algorithms is observed.

The experimentation was carried out on a set of 104 images with different appearance combining the masks and the restoration algorithms, to read about the experimentation, see^{xlvi}. From the experimentation, 86.5% of restorations were evaluated with values greater than 2 on a scale of 2 to 5, of which 66.3% were evaluated with values greater than 3.

In order to improve the results, the NMF will be applied. For that the absent data matrix containing the image information is considered like in^{xlvi}.

In^{xlvi} a similar study is presented. In this case only gray scale images are considered. The next figure shows the missing data in the matrix.



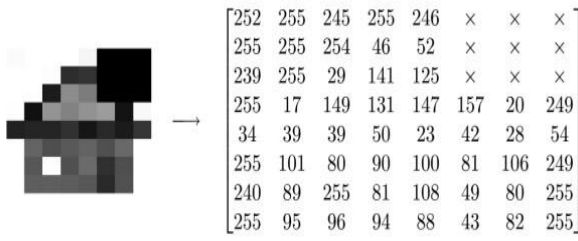


Figura 5: On the left the matrix associated with the image and on the right the image with missing pixels and the corresponding absent data matrix (taken from^{xlix}).

To compute the NMF Garza de la Luna explain in^l how a modification of the ALS method can be used to deal with the missing data. In section 1.2, the vector formulation of ALS is presented as a Least Squared Problem with inequality restrictions (LSI). The idea is to eliminate from the sum the elements that depend on values of the data that are not known. For them, values p_{ij} (weights) are introduced such that

$$p_{ij} = \begin{cases} 1, & a_{ij} \text{ known} \\ 0, & a_{ij} \text{ unknown} \end{cases}$$

The weighted version of the cost function is

$$\min_{a_j \geq 0} \frac{1}{2} \|p_j^\circ (y_j - Ax_j)\|_2^2$$

obtained

subject to $x \geq 0$, the algorithm with the modified cost function is known as weighted ALS.

Once the matrices A and X are calculated, even if the matrix Y has missing data, the coefficients of A and X are all known and if the product is computed an approximation of the data matrix Y is obtained.

1.2 Study of the Cuban public Spanish NMF have been widely used in Text Mining. In this example will be presented the main ideas of another application of the NMF.

At the University of Havana, the Faculties of Mathematics and Computer Science and the Faculty of Arts and Letters work together in a project for the study of the Public Spanish of Cuba. To do this, a corpus with representative texts is created and studied. The corpus has been called CORESPUC and has 4 large groups of texts. The detection of main topics is one of the studies that are in develop right now. This application is the one most frequently reported in the literature.

Although the NMF became well known with the works of Lee and Seung^{li}, especially by its application to the Database of face images, the applications in Text Mining^{lii}. In the same work, Lee and Seung reported an application to the semantic analysis of documents with the same multiplicative rules presented as an algorithm for the images and applied it to a Database of 30,991 articles of the Grolier Encyclopedia. In this application, the count of occurrences of each of the words (15,276) that appeared in the vocabulary to form the matrix $Y_{30,991 \times 15,276}$ was performed.

The experiment in development has as its first objective to obtain semantically related documents. For this, several sets of texts formed by letters to the Juventud Rebelde newspaper among others.

As a second objective, the Biber Methodology^{liii} is applied to study the registry variation in this set of texts. A register is characterized by a set of linguistic features. Once the linguists define the features to be taken into account, the aforementioned methodology is applied. In the literature, a factorial analysis of the covariance matrix is applied. In this research an NMF of this matrix is looked for and its effectiveness on the proposal of the literature is studied. ■

REFERENCES

- ⁱG. H. Golub and C. F. Van Loan, Matrix Computations, London: The Johns Hopkins University Press, 1996.
- ⁱⁱD. D. Lee and H. S. Seung, "Learning the parts of objects by non-negative matrix factorization", *Nature*, vol. 401, pp. 788-791, 1999.
- ⁱⁱⁱG. H. Golub and C. F. Van Loan, Matrix Computations, London: The Johns Hopkins University Press, 1996.
- ^{iv}G. H. Golub and C. F. Van Loan, Matrix Computations, London: The Johns Hopkins University Press, 1996.
- ^vR. L. Burden and J. D. Faires, Numerical Analysis, Boston: PWS-Kent Publishing Company, 1989. I. Jolliffe, Principal Component Analysis, New York: Springer Series in Statistics, 2002.
- ^{vii}R. L. Burden and J. D. Faires, Numerical Analysis, Boston: PWS-Kent Publishing Company, 1989. I. Jolliffe, Principal Component Analysis, New York: Springer Series in Statistics, 2002.
- ^{viii}A. K. J. O. E. Hyvärinen, "Independent Component Analysis," *Adaptive and Learning Systems for Signal Processing, Communications and Control*, John Wiley & Sohns, vol. 5, 2002.
- ^{ix}P. Paatero and U. Tapper, "Positive matrix factorization: A nonnegative factor model with optimal utilization of error estimates of data values", *Environmetrics*, vol. 5, pp. 111-126, 1994.
- ^xD. D. Lee and H. S. Seung, "Learning the parts of objects by non-negative matrix factorization", *Nature*, vol. 401, pp. 788-791, 1999.
- ^{xi}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xii}B. Dong, M. Lin and M. Chu, "Nonnegative rank factorization via rank reduction", <http://www4.ncsu.edu/mtchu/Research/Papers/Readme.html>, 2008.
- ^{xiii}C. Boutsidis and E. Gallopoulos, "Svd based initialization: A head start for nonnegative matrix factorization.", *Pattern Recognition*, vol. 41, no. 4, pp. 1350 - 1362, 2008.
- ^{xiv}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xv}C. Boutsidis and E. Gallopoulos, "Svd based initialization: A head start for nonnegative matrix factorization.", *Pattern Recognition*, vol. 41, no. 4, pp. 1350 - 1362, 2008.
- ^{xvi}P. C. Hansen, "Discrete Inverse Problems: Insight and Algorithms", Philadelphia: SIAM, 2010.
- ^{xvii}L. Villarin, A. León and M. L. Baguer, "GMRES preconditionado con Wavelets. Un algoritmo de selección del umbral para la obtención del patrón de dispersión", *Revista Investigación Operacional*, vol. 34, no. 2, 2013.
- ^{xviii}M. Berry and M. e. a. Browne, "Algorithms and applications for approximate nonnegative matrix factorization", *Computational Statistics and Data Analysis*, vol. 52, no. 1, pp. 155-173, 2007.
- ^{xix}M. e. a. Rezaei, "An efficient initialization method for Nonnegative Matrix Factorization", *Journal of Applied Sciences*, vol. 11, no. 2, pp. 354-359, 2011.
- ^{xx}C. Boutsidis and E. Gallopoulos, "Svd based initialization: A head start for nonnegative matrix factorization.", *Pattern Recognition*, vol. 41, no. 4, pp. 1350 - 1362, 2008.
- ^{xxi}M. Berry and M. e. a. Browne, "Algorithms and applications for approximate nonnegative matrix factorization", *Computational Statistics and Data Analysis*, vol. 52, no. 1, pp. 155-173, 2007.
- ^{xxii}P. Hoyer, "Non-negative Matrix Factorization with Sparseness Constraints", *Journal of Machine Learning Research*, vol. 5, pp. 1457-1469, 2004.
- ^{xxiii}M. Berry and M. e. a. Browne, "Algorithms and applications for approximate nonnegative matrix factorization", *Computational Statistics and Data Analysis*, vol. 52, no. 1, pp. 155-173, 2007.
- ^{xxiv}C. L. Lawson and R. J. Hanson, "Solving Least Squares Problems", Philadelphia: SIAM, 1995.
- ^{xxv}Garza de Luna, Federico, Factorizaciones matriciales no negativas: Algunos algoritmos y aplicaciones, Saltillo, Coahuila, Mexico: Tesis de Licenciatura en Matematica, 2013.
- ^{xxvi}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xxvii}G. H. Golub and C. F. Van Loan, Matrix Computations, London: The Johns Hopkins University Press, 1996.
- ^{xxviii}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xxix}C. L. Lawson and R. J. Hanson, "Solving Least Squares Problems", Philadelphia: SIAM, 1995.
- ^{xxx}C. L. Lawson and R. J. Hanson, "Solving Least Squares Problems", Philadelphia: SIAM, 1995.
- ^{xxxi}D. D. Lee and H. S. Seung, "Algorithms for Nonnegative Matrix Factorization", *MIT Press*, vol. 13, 2002.
- ^{xxxii}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xxxiii}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xxxiv}A. Janacek and T. Ying, "Using population based algorithms for initializing Non negative Matrix Factorizations", *LNCS*, vol. 6729, pp. 307-316, 2011.
- ^{xxxv}Rezaei, Masoumeh, Boostani and Reza, "Using Genetic algorithm to enhance nonnegative matrix factorization initialization", *Expert Systems*, vol. 31, no. 3, 2014.
- ^{xxxvi}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{xxxvii}M. Montero Ceballos, "Segmentación de imágenes de mamografías usando técnicas espectrales", Tesis de Diploma, Universidad de La Habana, La Habana, 2017.
- ^{xxxviii}T. Chan and J. Shen, Image Processing and Analysis, Philadelphia: SIAM, 2005.
- ^{xxxix}T. Chan and J. Shen, Image Processing and Analysis, Philadelphia: SIAM, 2005.
- ^{xl}M. Montero Ceballos, "Segmentación de imágenes de mamografías usando técnicas espectrales", Tesis de Diploma, Universidad de La Habana, La Habana, 2017.
- ^{xli}C. e. Moreira, "INbreast: Toward a Full-field Digital Mammographic Database", *Academic Radiology*, vol. 19, no. 2, 2012.
- ^{xlii}M. Montero Ceballos, "Segmentación de imágenes de mamografías usando técnicas espectrales", Tesis de Diploma, Universidad de La Habana, La Habana, 2017.
- ^{xliiii}M. Montero Ceballos, "Segmentación de imágenes de mamografías usando técnicas espectrales", Tesis de Diploma, Universidad de La Habana, La Habana, 2017.
- ^{xliv}L. Villarin, A. León and M. L. Baguer, "GMRES preconditionado con Wavelets. Un algoritmo de selección del umbral para la obtención del patrón de dispersión", *Revista Investigación Operacional*, vol. 34, no. 2, 2013.
- ^{xlv}A. Palmer, "Eliminación de regiones especulares en imágenes colposcópicas de cuello de útero", Tesis de Diploma, Universidad de La Habana, La Habana, 2015.
- ^{xlvi}A. Palmer, "Eliminación de regiones especulares en imágenes colposcópicas de cuello de útero", Tesis de Diploma, Universidad de La Habana, La Habana, 2015.
- ^{xlvii}Garza de Luna, Federico, Factorizaciones matriciales no negativas: Algunos algoritmos y aplicaciones, Saltillo, Coahuila, Mexico: Tesis de Licenciatura en Matematica, 2013.
- ^{xlviii}Garza de Luna, Federico, Factorizaciones matriciales no negativas: Algunos algoritmos y aplicaciones, Saltillo, Coahuila, Mexico: Tesis de Licenciatura en Matematica, 2013.
- ^{xlix}Garza de Luna, Federico, Factorizaciones matriciales no negativas: Algunos algoritmos y aplicaciones, Saltillo, Coahuila, Mexico: Tesis de Licenciatura en Matematica, 2013.
- ^lGarza de Luna, Federico, Factorizaciones matriciales no negativas: Algunos algoritmos y aplicaciones, Saltillo, Coahuila, Mexico: Tesis de Licenciatura en Matematica, 2013.
- ^{li}D. D. Lee and H. S. Seung, "Learning the parts of objects by non-negative matrix factorization", *Nature*, vol. 401, pp. 788-791, 1999.
- ^{lii}A. Cichocki, R. Zdunek, A. H. Phan and S.-I. Amari, Nonnegative Matrix and Tensor Factorizations, United Kingdom: John Wiley & Sons, Ltd, 2009.
- ^{liiii}J. W. Demmel, Applied Numerical Linear Algebra, Philadelphia: SIAM, 1997.

Anchor Institution-Community Engagement in Newark: Striving Together

Nancy Cantor, Chancellor, Rutgers University-Newarkⁱ

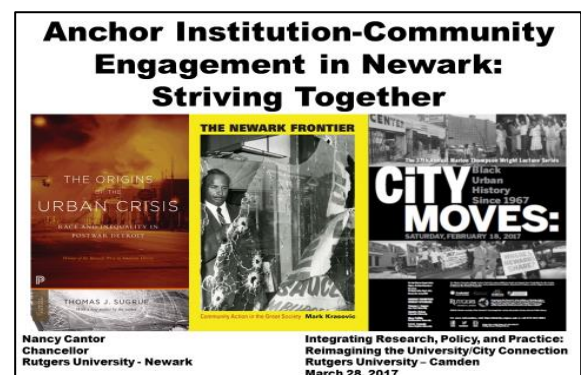
I would like to start, today, by thinking broadly about the relevance of universities to a new generation (or re-generation) of urban social movements organized around community development, empowerment, and social justice. As historian Thomas Sugrue recently reminded an audience at Rutgers University-Newark, while real progress came from the social movements that followed the urban rebellions of 1967 in Newark, Detroit, and many similar cities, much of it has since eroded.ⁱⁱ



Now, as in 1967, we face again the need to build structures for the long term to move the needle, replacing an architecture of segregation and inequality with an architecture of inclusion and equitable prosperity.ⁱⁱⁱ The need for such a movement is clear in report after report on the disparities and fractures in our economy and educational systems. Consider, as examples: Anthony Carnevale's data showing less than 1% of the 11.5 million new jobs added in the post-2008 economic recovery going to those with only a high school degree;^{iv} Paul Jargowsky's sober documentation of the architecture of segregation in urban America,^v along with Gary Orfield's analysis of the concomitant "double

segregation" (by race and class) that plagues our nation's public schools;^{vi} and the Century Foundation's report on preventing community colleges from becoming separate and unequal.^{vii}

Together these reports remind us that: educational attainment and economic mobility go hand-in-hand; in turn, we are leaving way too much talent on the side-lines of opportunity; and it will take a collaborative village across traditional divides to effect social change. Indeed, and despite the fraught contemporary social-political landscape within which we find ourselves, a collaborative anchor institutions movement, such as the one that Ira Harkavy and David Maurrasse (with many of us as co-conspirators) have grown,^{viii} can really make a difference. It is our opportunity and our responsibility to join forces in cross-sector collaborations, building on long-standing legacies of strength and cultural diversity in our cities, to make long-term, sustainable change in arenas from education to economic development to arts & culture and the environment, and public health and safety.



The Architecture of Inclusion in Anchor Institution-Community Engagement

At the heart of the anchor institution-community partnerships model is the recognition of the fundamental interdependence between the anchor institution and its home community. One of the signatures of this approach is that there is a seamless two-way street between the university and the community, with a sharing of power and resources and space to establish a mutual flow back and forth of people and ideas and investments, and an openness to collaboration and change in both directions. This kind of work takes sustained commitment to nurture the infrastructure of collaboration itself – to build an architecture of inclusion and a practice of full participation. It is at the heart of many of the “creative place-making” efforts around the country, perhaps most developed in the remarkable work of artist, urban planner, innovator, Theaster Gates in the South Side of Chicago.^{ix}

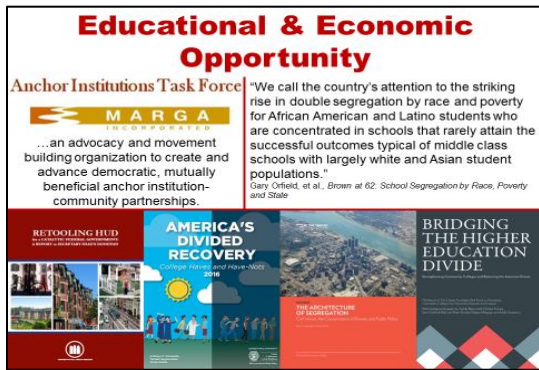
In Newark, following this model, faculty from our Arts, Culture and Media Department partner with multiple small and large local arts organizations in a university-community arts collaboratory, a “third space,” for teaching, arts production, community dialogue and activism. *Express Newark* inhabits 50,000 square feet in an iconic, once-abandoned, building downtown that has been recently restored for mixed-use residential and retail by a team of developers and investors, enlivening its rebirth with all the fervent, contested, honest arts-making possible.^x

In it, the next generation of artists, humanists, and creative entrepreneurs at Rutgers-Newark are on equal footing with Newark public school students, local Newark artists, residents, and innovators, taking classes, learning new

expressive media, as well as the “business” of artistic production. Organizations of every scale collaborate in this space, from student-run magazines like our *Scarlet Magazine* to the Newark Print Shop, resident in *Express Newark*, to arts education collaborations with the Newark Public Schools and the major cultural anchors (like the Newark Museum and NJPAC) in the city.



While, there is, of course, no guarantee that differences in power, position, scale, resources, and backgrounds will be easy to bridge, we can at least set the stage for an ecosystem of civic democracy to grow, and that will be a victory of sorts in and of itself. In fact, *Express Newark* has only been open for a couple of months and already we are seeing the space come alive, including a jam-packed community launch of the fifth issue of the digital multimedia collaborative, the *Newest Americans*, with video stories of the inter-generational immigrant community in Newark’s Ironbound. Newark is a city with a very long – 350 year – history of creativity, resilience, and most of all expressive confrontation with injustice, so we can expect this space to continually serve as a platform for difficult dialogues, community celebration and empowerment



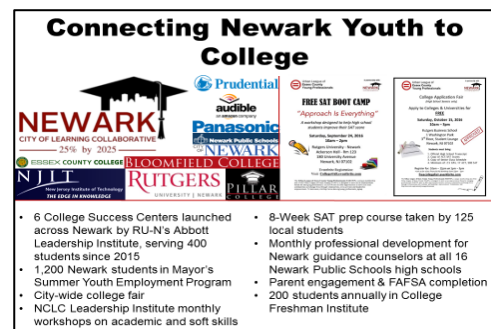
Broader Collective Impact Consortia

Moving up in scale, our anchor institution work sometimes unfolds within the context of city wide collective impact initiatives that span multiple sectors and organizational partners coming together to reach a target goal of social change. In Newark, for example, there are collective impact consortia of government, business, non-profit, educational and medical anchors, working on both educational attainment (25% post-secondary degrees for residents by 2025)^{xi} and economic mobility (2020 new jobs for city residents by 2020).^{xii} Within that context, the university's anchor role may be two-fold, serving, for example, as a backbone organization (gathering together partners, creating data platforms and convening dialogues), and at the same time enacting with community partners particular programs or interventions to affect the long-term goal of the collective.

Let me illustrate this approach to anchor institution work and the integration of research, policy, and practice with the ever-evolving work of the Newark City of Learning Collaborative (NCLC). NCLC is a broad-ranging collaboration of the Newark Public Schools, the Opportunity Youth Network, five higher education institutions, the City of Newark, numerous CBOs, and major corporate and

foundation partners, dedicated to raising post-secondary attainment in Newark.

Rutgers-Newark's Joseph C. Cornwall Center for Metropolitan Studies serves as the backbone organization for NCLC, convening study groups to identify obstacles and interventions, and assessing progress in city-wide, high school graduation, college access, retention, and completion. It organizes CBO and educational anchor partners to staff "college knowledge" centers, college fairs, and workshops throughout the district (working with families and students on FAFSA completion, SAT prep, college applications). NCLC and the Newark Public Schools work closely, including sharing a staff liaison, providing monthly professional development sessions for high school counsellors throughout the district, and articulating educational pathways for Newark students across the high school -2-4 year divides. NCLC also works closely with the City of Newark, serving since 2015 over a thousand students in the City's Summer Youth Employment Program with college readiness workshops and carrying over those workshops during the school year. It also works with local corporate partners in a College Freshman Institute to provide incoming college freshman from Newark with internships and a social capital network for career development advice.

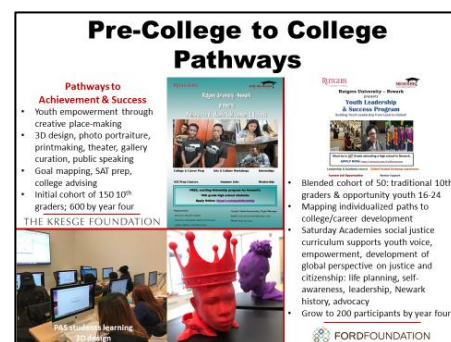


A central focus of NCLC's programming is to create a post-secondary ecosystem in the city that reaches into the high schools and paves the way for Newark students to enter and succeed in college. Each of the higher education partners in the Collaborative has a tradition of engagement in pre-college programming and the intent is to build on and scale up those opportunities.

For example, NCLC recently launched two signature pre-college to college pathway programs. Each program is a multi-year pathway for high school students recruited from across the city, providing academic programming, opportunities for civic and cultural engagement in the city, and social-emotional supports from trained mentors who will follow the students into college. In the Pathways to Achievement and Success Program (PAS), a 150 10th graders from schools all across the city participate in Saturday Academies at Express Newark (learning everything from 3D printing to theater arts, portraiture, and public speaking) and also take part in goal mapping, SAT prep, and college guidance work. PAS will grow from an initial cohort of 150 to 600 by year four of the program. We will follow these 10th graders as they matriculate through high school, support them as they successfully transition into college, and continue supports to enable them to complete their degrees. Similarly, NCLC collaborates with its partner organization the Opportunity Youth Network in the Youth Leadership and Success Program (YLSP). YLSP blends a cohort of traditional (10th graders) and opportunity youth (ranging in age from 16-24) in support of college and career planning and development, utilizing a social justice curriculum to support the development of youth voice and empowerment, enabling 50 young people a year

to develop a global perspective on justice and citizenship. This program, which will grow to 200 participants by year four, aims to prepare each YLSP Fellow in mapping a path to college and/or career. Saturday Academies include life planning, exercises on self-awareness, seminars on leadership, the city's history, and advocacy.

Just as the Netter Center at the University of Pennsylvania is constantly innovating in its university-assisted community schools anchor institution work in Philadelphia, the programmatic interventions that NCLC creates draw on the research and policy work of the Cornwall Center staff, especially as they keep up with trends in "improvement science"^{xiii} that inform university-schools-community engagement. Without the insights of the participants, community-based "participatory" research and practice is not truly participatory and therefore is less likely to meet our long-term expectations. As such, all of the evaluation work in these projects needs to involve as much formative as summative assessment and flexible improvement-oriented, mutually and collaboratively designed recommendations for new programming.



As with all of our collaborations, the programming, interventions, and evaluations associated with NCLC, also occur in a broader framework of the university's strategic anchor

institution plan and its commitment to high-impact scholarship with policy and advocacy implications for urban communities. For example, through our institutional Chancellor's SEED grant program, we have supported several interdisciplinary initiatives with direct implications for urban education specifically and metropolitan community development more generally.

These include research using GIS methodologies to map resources in cities (and their suburban rings), such as supermarkets, free pre-K, job training centers, transportation, social service agencies, crime hot spots, and cultural institutions – all part of a municipal opportunity index that forms the context for successful schooling. And, as David Troutt, the faculty director of the Center on Law in Metropolitan Equity (CLiME) notes, this tool then becomes a platform for asking questions like: “do people follow assets or assets follow people?”, as we think about supporting strong, healthy, safe neighborhoods that promote educational and economic justice. Similarly, we know that educating children in integrated (rather than racially homogeneous) schools presages better individual and societal outcomes, but how do we achieve integration without disrupting communities in ways that backfire? Elise Boddie, Paul Tractenberg, and other Rutgers-Newark faculty are asking just such questions, ultimately informing both advocacy campaigns and collective impact work like that of the Community Schools South Ward Initiative in Newark. Moreover, Charles Payne, the incoming director of the Cornwall Center, is embarking on a program of public information and community dialogue across a range of topics from local control of schools to best practices for parent engagement in schooling, with an eye toward

community capacity building so that the mutuality of anchor institution work on the ground can best flourish.



Anchor Institution Investments: Changing Ourselves to Effect Change

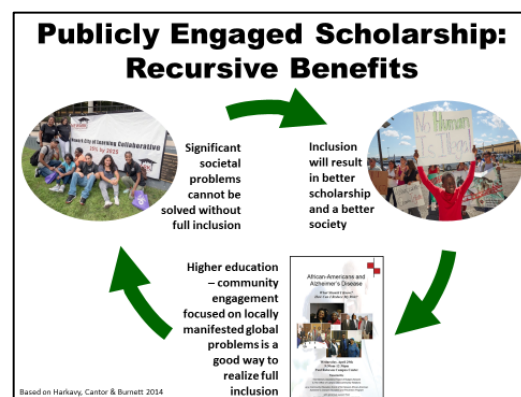
As our universities mobilize for anchor institution engagement and evidence-based assessment and advocacy, we also need to improve our own institutional goals, practices, and investments. At Rutgers-Newark, we have experienced this mandate for institutional assessment in each of the collective impact domains in which we operate, from figuring out new ways to support the engagement of local artists in Express Newark, to adapting our procurement and hiring practices in support of a city-wide, jobs initiative and the live-work-buy anchor coalition in Newark. Whereas some of this institutional assessment involves changing operational practices, other aspects go perhaps more deeply to the core of our scholarly and educational mission and commitments. This is certainly true as we think about the specific institutional role that Rutgers-Newark needs to play in achieving educational opportunity for Newark residents and students from NJ's under-resourced communities across the State, clearly at the heart of NCLC and our public university mission more broadly. It is also true as we

consider how to best support the engagement of a new generation of scholars who often have broad interdisciplinary and community-engaged interests and personal commitments to diverse social identities that can be reinforced by and contribute to this anchor work.^{xiv}

As one example of creating more inclusive environments for students and faculty alike, our new Honors Living Learning Community, dedicated to local citizenship in a global world,^{xv} brings students who come to us both straight out of high school and as county-college transfers. They have taken many paths in life, as veterans, parents, formerly incarcerated, homeless, or from foster care, to name a few of their paths to college. They bring knowledge and insights perfectly suited to take the mantle in a new movement for social justice, locally and beyond. Moreover, as they interact with a very broad group of publicly active scholars and citizens in an interdisciplinary, community-engaged curriculum, they teach our faculty in turn and improve our anchor institution work.

Moreover, as we build on the strength, talent, and experience of this next generation, we also need to put in place innovative pedagogy, professional development for graduate students, and rewards for publicly engaged scholarship to nurture a diverse “new professoriate” for the work of our anchor institutions. For us, this has meant creating a P3 Collaboratory on campus to study and support: collaborations across disciplines and in community, engagement with national groups studying everything from gateway courses to new evaluation rubrics for publicly-engaged scholarship, fostering conversations about the life and work of the “new professoriate,” including those publicly-active graduate students^{xvi} looking ahead to innovative career paths. There is little doubt that

university-community collaboration is both rewarding and very hard, and like everything else in the academy we had better study it well, accumulating both best practice knowledge and the necessary modesty to make it most likely to succeed out in the world beyond the ivory tower.^{xvii}



Moving Beyond the Ivory Tower

Speaking of moving beyond the ivory tower, the ultimate aim of good anchor institution-community collaboration is to proliferate opportunity – social, cultural, economic, civic, educational – throughout the city, from downtown business districts to university campuses to the neighborhoods in which people live, children grow up, and generations take shape. When this happens well, there will be fewer isolated clusters or hotspots of opportunity, be they geographic (downtown business and cultural hubs versus isolated and degraded neighborhoods), racial (an architecture of segregation), or economic (rampant inequality), disparities that divide populations and hold individuals back. We need the impact of anchor institution engagement to be broadly (geographically, socially, and economically) shared such that what Raj Chetty and his colleagues called the “birth lottery” will no

longer rule the fate of children growing up in our cities and towns.^{xviii}

At the core of spreading opportunity is and must be the fulsome engagement of local citizens, of all generations, in the anchor institution-community engagement partnerships. Not only will this provide a better avenue to sustained social change, but it is a capacity building strategy for society as well. As Ira Harkavy, Myra Burnett, and I noted in a White Paper commissioned by the National Science Foundation, the positive recursive cycle of inclusive community-engaged science not only produces better science but better more diverse scientists and ultimately a better, healthier society.^{xix} We have seen this positive recursive cycle in action in Newark, where, for example, our university-community partnerships office

organized an African-American Brain Health Initiative as a collaboration between Rutgers-Newark neuroscientists, retired Black nurses, and faith-based organizations. The collaborative effort here both promotes healthy neighborhoods and simultaneously serves as a recruiting tool for the next generation of STEM students in Newark, who in turn, serve as ambassadors spreading an inter-generational message about educational attainment to future children in their community. In other words, there is much of value in an architecture of inclusion – inter-generational, inter-institutional, and inter-cultural, and that it seems to me is what good university-community anchor institution work should aspire to accomplish, in a new urban movement for social justice.■

REFERENCES

- ⁱ Panel presentation, *Integrating Research, Policy, and Practice: Reimagining the University-City Connection*, Rutgers University-Camden, Camden, NJ, March 28, 2017. Appreciation is extended to Peter Englot for his collaboration and insights on this work.
- ⁱⁱ Thomas Sugrue, *City Moves: Black Urban History Since 1967*, Marion Thompson Wright Lecture, Rutgers University-Newark, February 18, 2017. See also, Nancy Cantor, Remarks at 37th Annual Marion Thompson Wright Lecture Series, Rutgers University-Newark, February 18, 2017.
- ⁱⁱⁱ Editorial, “The Architecture of Segregation,” *The New York Times*, September 6, 2015, SR8; Sturm, S., Eatman, T., Saltmarsh, J., & Bush, A. (2011). Full participation: Building the architecture for diversity and public engagement (2006), *Harvard Journal of Law and Gender*, 30, 248–334.
- ^{iv} Anthony Carnevale, *America’s Divided Recovery: College Haves and Have-Nots*, Georgetown University Center on Education and the Workforce report, 2016.
- ^v Paul Jargowsky, Architecture of Segregation: Civil Unrest, the Concentration of Poverty, and Public Policy, *The Century Foundation*, Report: Race and Inequality, August 7, 2015.
- ^{vi} Gary Orfield, Jongyeon Ee, Erica Frankenberg, and Genevieve Siegel-Hawley, *Brown at 62: School Segregation by Race, Poverty and State*, Research Brief of UCLA Civil Rights Project, May 16, 2016.
- ^{vii} See The Century Foundation Task Force on Preventing Community Colleges from Becoming Separate and Unequal, *Bridging the Higher Education Divide: Strengthening Community Colleges and Restoring the American Dream*. Washington, DC: The Century Foundation, 2013.
- ^{viii} See, <http://www.margainc.com/aitf/>.
- ^{ix} Natalie Moore, How Theaster Gates is Revitalizing Chicago’s South Side, One Vacant Building at a Time, *Smithsonian Magazine*, December 2015.

^x See: Express Newark, RU-N’s Arts Incubator, Now Open in Historic Former Hahne’s Department Store, is Bringing New Synergy to Newark’s Arts District,

<http://www.newark.rutgers.edu>.

^{xi} See: <http://www.nclc2025.org/>.

^{xii} See, for example, the call for economic and racial justice from Mayor Ras J. Baraka and Ryan P. Haygood, Cities Have the Power to Finally Bridge MLK’s ‘Two Americas,’ *The Nation*, January 16, 2017.

^{xiii} See Using Improvement Science to Accelerate Learning and Address Problems of Practice, Carnegie Foundation for the Advancement of Teaching, <http://www.carnegiefoundation.org/our-ideas/>.

^{xiv} See Stephanie A. Fryberg and Ernesto Javier Martinez (Eds.), *The Truly Diverse Faculty: New Dialogues in American Higher Education*, New York, NY: Palgrave Macmillan, 2014.

^{xv} See Meredith Kolodner, A University that Prioritizes the Students who are Often Ignored, *The Atlantic*, May 19, 2016; <http://www.newark.rutgers.edu/tags/hllc/>.

^{xvi} See <http://imaginingamerica.org/>.

^{xvii} Nancy Cantor and Peter Englot, Civic Renewal of Higher Education through Renewed Commitment to the Public Good, In Jill N. Reich (Ed.), *Civic Engagement, Civic Development, and Higher Education, Bringing Theory to Practice*, Washington, DC., 2014, pp. 3-11.

^{xviii} Raj Chetty, Nathaniel Hendren, Patrick Kline, Emmanuel Saez, and Nicholas Turner, Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility, *NBER Working Paper* 19844, January 2014.

^{xix} Harkavy, I., Cantor, N. and Burnett, M. 2014. Realizing STEM Equity and Diversity through Higher Education-Community Engagement, White Paper supported by National Science Foundation under Grant No. 121996, University of Pennsylvania.

University-Community Partnerships in Pursuit of Social Justice: An Anchor Institutions Approach to Advancing Teaching and Research and Improving the Quality of Life

Ira Harkavy and Rita A. Hodges

The extreme poverty, persistent deprivation, and pernicious racism afflicting communities in the shadows of powerful, relatively wealthy urban universities raise troubling moral issues, as well as questions about higher education's contribution to the public good. It is essential that universities as key anchor institutions significantly and effectively contribute to radically reducing the pervasive, ongoing, seemingly intractable problems of our inner cities.¹

Conditions in our city Philadelphia, Pennsylvania are an example of a more general phenomenon of urban distress. With approximately 26 percent of its population living in poverty, Philadelphia has had the highest poverty rate among the nation's 10 largest cities for the last decade. Over 12 percent of Philadelphians live in deep poverty (an income of \$12,150 or less for a family of four in 2016). At the same time, Philadelphia (and many other cities) is home to a key resource that can help to change these conditions. It has one of the highest concentrations of anchor institutions, with "eds and meds" representing 12 of the 15 largest private employers, and the Philadelphia metropolitan area contains more than 100 colleges and universities.²

A burgeoning higher education democratic civic and community engagement movement has developed in part as a response to these pervasive problems. Service learning,

community-based participatory research, volunteer projects, and community economic development initiatives are some of the means that have been used to create mutually beneficial partnerships designed to make a positive difference in the community and on campus. But these efforts, although they are important, generally fall far short of what is required.

An urban university's interaction with its local community might usefully be placed within the following four categories:

1. Gentrification and displacement of low-income residents,
2. Disregard and neglect,
3. Partially engaged (frequently indicated by involvement of the academic *or* the institutional/corporate component of the university, but not both),
4. Truly engaged (involving comprehensive, significant, serious, and sustained involvement of *all* aspects of the university with the community, including integration of academic and institutional resources).

We argue for the development of truly engaged universities, in which a very high priority is given not only to significantly improving the quality of life in the local community, but also to working *with* the community respectfully, collaboratively, and democratically. In addition, helping to develop and implement solutions to strategic,

community-identified local problems functions as a curriculum, text, *and* performance test for a truly engaged university's research, teaching, and learning activities. No urban university, as far as we can tell, presently meets these criteria. Nonetheless, progress has occurred over the past 30 or so years with an increasing number of universities taking meaningful, if insufficient, steps in the right direction. Because we know it best, we will focus on the University of Pennsylvania, which has been recognized as a leader for its involvement with West Philadelphia, its local geographic community.³

TOWARDS AN INTEGRATED DEMOCRATIC ANCHOR INSTITUTION- COMMUNITY PARTNERSHIPS APPROACH: PENN AND THE NETTER CENTER

The Netter Center for Community Partnerships

The Center for Community Partnerships (renamed in 2007 as the Netter Center for Community Partnerships) was established in 1992 by then Penn President Sheldon Hackney as a university-wide center that would identify, mobilize, and integrate Penn's vast resources in order to help transform West Philadelphia, particularly by improving the public schools while helping to transform teaching, research and service at the University.

The Center's work was building on efforts begun in the early 1980s, particularly the development of two core concepts: academically based community service and university-assisted community schools. Through Academically Based Community Service (ABCS) courses, service is rooted in and intrinsically tied to research, teaching, and learning, and the goal of these courses is to contribute to structural community improvement. University-Assisted Community Schools educate, engage, empower,

and serve not only students, but also all other members of the community, providing an organizing framework for bringing university programs, including ABCS courses, to West Philadelphia schools. We have come to view ABCS and UACS as core to a comprehensive anchor institution strategy in which universities engage in sustained, mutually beneficial partnerships with their communities.

We will first provide further background on ABCS. Over the past few decades, an increasing number of faculty members, from a wide range of Penn schools and departments, have revised existing courses, or have created new ABCS courses, providing innovative curricular opportunities for their students to become active learners, creative real-world problem solvers, and active producers (as opposed to passive consumers) of knowledge. In 2016-2017, the Netter Center helped coordinate 70 ABCS courses taught across 31 departments and programs in 8 of Penn's 12 schools, engaging approximately 1700 Penn students (undergraduate, graduate, and professional).

The Agatston Urban Nutrition Initiative is an example of an evolving Netter Center program that was catalyzed through ABCS. In 1991, Professor Francis Johnston, a renowned expert on nutritional anthropology who had recently concluded a lengthy tenure as chair of the Anthropology Department decided to redesign a course, Anthropology 210, to address the community-identified problem of poor nutrition, with the initial work at Turner Middle School. It became the prototype for Academically Based Community Service courses. A widening circle of Penn faculty and students began working with Johnston over the next few years in collaboration with local middle school teachers and students to understand the

nutritional practices in the community. The course also sought to address the problem through a series of projects aimed at encouraging better nutrition. These included an educational program, a school-based garden, an in-school market that provided healthy snacks, and a nutritional outreach program for the community. Anthropology 210's success not only influenced the anthropology department (which went on to develop an academic track on Public Interest Anthropology), but it also inspired other Penn departments and schools to become involved.⁴ Furthermore, it led to the development of the Agatston Urban Nutrition Initiative (AUNI). Today, AUNI integrates research, teaching, learning, and service in an approach that brings together a range of Penn's social science, health, and medical resources, as well as the resources of community partners at the Netter Center's university-assisted community schools (UACS) sites in West Philadelphia, at more than a dozen other Philadelphia schools, and at various West Philadelphia community centers and locations, to improve health and nutrition and reduce obesity.

As noted above, another major component of the Netter Center's work is mobilizing the substantial resources of the University to help traditional public schools serve as innovative university-assisted community schools (UACS) that educate, engage, empower, and serve not only students, but also all members of the community in which the school is located. ABCS courses, internships, and work-study and volunteer opportunities bring hundreds of Penn students into the schools, where programming occurs during the school day, after school, evenings, and summers.

As of fall 2017, the Netter Center's work has grown to include children and families at nine university-assisted community schools in

West Philadelphia. Netter Center site directors collaborate closely with each school and its community to determine activities that best serve their specific needs and interests. In addition to coordinating the programs, UACS site directors serve as liaisons between the University and the school, as well as between school day teachers and the after school program. Staff from the Center's thematic-based programs such as the Agatston Urban Nutrition Initiative and Moelis Access Science (described below) are also regularly working in the schools.

Moelis Access Science is an example of a sustained, mutually beneficial partnership that Penn has developed through ABCS courses and University-Assisted Community School programming. Begun in 1999 with initial support from the National Science Foundation, Moelis Access Science works to improve science, technology, engineering, and math (STEM) education of both K-12 students and undergraduate and graduate students at Penn. Faculty and students from across campus provide content-based professional development for teachers and direct classroom support for implementing quality hands-on and small group activities. Undergraduates in Moelis Access Science-affiliated ABCS courses provide content-based professional development for teachers and direct classroom support for implementing high-quality, hands-on laboratory exercises and small-group activities.

Approximately a dozen ABCS courses related to the program are now offered each year in the Departments of Biology, Mathematics, Environmental Science, Physics, Education, Chemistry, Electrical and Systems Engineering, and Computer and Information Science, among others. "Community Physics Initiative," taught by Professor Larry Gladney, associate dean for

the Natural Sciences, is illustrative. Aligned with the School District of Philadelphia's curriculum for introductory high school physics, Gladney's course links the practical and theoretical aspects of foundational physics. By developing and teaching weekly laboratory exercises and classroom demonstrations at a nearby high school, Penn students learn science by teaching it.

Some of the specific resources and incentives provided for faculty, staff, and student engagement include better teaching, learning, and research through hands-on real-world problem solving in the local community. The Netter Center provides course development grants and undergraduate teaching assistants to support faculty. Transportation and background clearances are provided for students to assist in their service placements. The ABCS Coordinator and numerous staff coordinators maintain strong, ongoing, democratic relationships with school and community partners and help effectively connect faculty, staff, and students to these partnerships in a mutually beneficial way.

Not to minimize the accomplishments described above, academic engagement alone is insufficient to make the needed changes. The involvement of the entire university is called for if genuine progress is to be made. By *beginning* to consciously integrate its academic and its institutional efforts for community improvement, Penn is mobilizing increased resources to better realize its mission as an engaged anchor institution. We describe some of Penn's community economic development efforts below.

Partnership with Office of Executive Vice President for Community Economic Development

The Netter Center works in close partnership with the Office of Executive Vice President on issues of community economic development that help advance Penn's role as an anchor institution. Penn's Economic Inclusion Program engages local, minority, and women-owned businesses and residents in the University's economic activity. Penn launched its "Buy West Philadelphia" program in the 1980s, for example, to direct its purchasing dollars to local vendors, and the program has continued to grow since then. In fiscal year 2015, Penn spent \$122 million with West Philadelphia-based businesses (approximately 13.07% of total purchasing of goods and services). Penn partners with city entities such as the Minority Business Enterprise Center to help build capacity for small, local suppliers. For all campus construction projects of five million dollars or more, Penn has also made it a condition of general contractors to hire at least 25% women or minority-owned subcontractors. In fiscal year 2015, Penn and its Health System hired 1572 local residents (47.5% of all new hires). In housing development, since 1998, Penn's Enhanced Mortgage Program has provided over 1,000 grants to staff and faculty as an incentive to choose West Philadelphia to live in. Penn also created a Neighborhood Preservation and Development Fund in the mid-90s to secure several hundred units of apartments to below market price, to ensure equity among housing, while also creating new market rate housing.

Penn helped create a special services district – University City District (UCD) – in 1997 to clean the streets and help patrol alongside Penn's own new police force and city police. Today, UCD is a 26-member board representing "eds and meds," local businesses

and non-profits, and residents, chaired by Penn's executive vice president Craig Carnaroli, with a much broader vision. Between 2000 and 2016, UCD trained approximately 600 local residents for jobs at Penn and other local anchor institutions through its West Philadelphia Skills Initiative, with over 90% of recent graduates connected to employment.⁵

These strategies – including ABCS, UACS, and community economic development activities that help advance Penn's role as anchor institution – are shared with others across the country and around the world.

FROM LOCAL TO REGIONAL, NATIONAL, AND GLOBAL

Since the Netter Center's inception, one of its objectives has been to cultivate regional, national, and international networks of individuals and institutions of higher education committed to democratic civic engagement with their communities. In 1987, Penn and two other Philadelphia universities, Temple and La Salle, founded the Philadelphia Higher Education Network for Neighborhood Development (PHENND), a consortium of colleges and universities in the greater Philadelphia area dedicated to helping revitalize local communities and schools and to fostering civic responsibility among the region's institutions of higher education. At this writing, PHENND's membership includes more than thirty colleges and universities.⁶

Beginning in the early 1990s, a number of institutions began to express interest in the model of university-community-school collaboration being developed by the Netter Center and its school and community partners, what was then known as the West Philadelphia Improvement Corps (WEPIC). The WEPIC

Replication Project hosted a series of visitors and conferences, as well as funded 23 adaptation sites. With the naming gift to the Netter Center in 2007, the strategy for adaptation shifted from funding individual university-assisted community school partnerships to creating regional training centers, based at higher educational institutions that have demonstrated significant experience and commitment to the work. In 2008, the Netter Center began supporting the development of multi-state regional training centers on the university-assisted community school model. University of Oklahoma-Tulsa was selected as the first regional training center in the southwest, followed by Indiana University-Purdue University Indianapolis (IUPUI), which developed the Midwest Center for University-Assisted Community Schools, and then University of Connecticut, which created the New England University-Assisted Community School Collaborative. UCLA was selected as the fourth regional training center in fall 2017. Their newly established UCLA Center for Community Schooling will host an annual conference and site visits, as well as develop web-based tools for the field.

A University-Assisted Community Schools Network was also formed in 2015 by the Netter Center in collaboration with the Coalition for Community Schools and Rutgers University–Camden, in response to the growing numbers of institutions of higher education engaged with community schools. Approximately 70 institutions are now participating in the monthly network calls to share resources, best practices, and advance the work. Comprehensive, democratic engagement of universities and other anchor institutions is at the core of the Anchor Institutions Task Force (AITF). In 2009, the

Task Force on Anchor Institutions, an ad hoc national panel chaired by Harkavy, advised the U.S. Department of Housing and Urban Development (HUD) on how the agency could “strategically leverage anchor institutions, particularly institutions of higher education and medical centers (‘eds and meds’), to improve their local communities and help solve significant urban problems.” Soon after the task force submitted its report, *Anchor Institutions as Partners in Building Successful Communities and Local Economies*, it became a permanent, formal organization, the AITF, with the mission of forging democratic civic partnerships involving anchor institutions. The AITF, which has grown to include approximately 800 individual members, is guided by the core values of collaboration and partnership, equity and social justice, democracy and democratic practice, and commitment to place and community.⁷ Marga Inc. administers AITF, with Harkavy continuing to serve as chair at the request of task force members. Significantly, the development of this group as a permanent organization has helped bring the idea of anchor institutions increasingly into national academic and policy discussions.

A significant and enduring global organizational development has been the formation of the International Consortium for Higher Education, Civic Responsibility, and Democracy (IC) in 1999. Its purpose is to advance the contributions of institutions of higher education to democratic development on campus, as well as in local communities and the wider society. The IC works in collaboration with the Council of Europe (COE) and its Steering Committee on Educational Policy and Practice. The IC/COE collaboration undertakes cross-national research projects, joint global

forums, publications, and the sharing of best practices as part of its efforts to advance higher education’s contribution to building democratic societies. The Netter Center houses the executive offices of the IC and Harkavy chairs the U.S. steering committee. The IC/CoE and AITF have also begun collaborating on building a European effort for anchor institution engagement.

OBSTACLES TO DEVELOPING AND SUSTAINING DEMOCRATIC UNIVERSITY-COMMUNITY PARTNERSHIPS

Although the work described at Penn and the growing national and global movement for democratic university-community engagement are indicators of genuine progress, Penn and others still have a *very* long way to go to comprehensively and effectively engage and align their various components and substantial resources in democratic, sustained, mutually transformative partnerships with their local communities. Significant obstacles have impeded the development of truly engaged universities.

These impediments—including commercialism and commodification, misplaced nostalgia for traditional, elitist, “ivory tower” liberal arts education, and intellectual and institutional fragmentation—have slowed Penn and other institutions’ development as truly democratic, engaged, civic universities.

Education for profit, not virtue; students as consumers, not producers of knowledge; academics as individual superstars, not members of a community of scholars—all of these developments reflect the commercialization of higher education, which contributes to an overemphasis on institutional competition for wealth and status and has a devastating impact on the values and ambitions of college students.⁸

When institutions openly pursue commercialization, their behavior legitimizes and reinforces the pursuit of economic self-interest by students and amplifies the widespread sense that they are in college *exclusively* to gain career-related skills and credentials. Student idealism and civic engagement are strongly diminished when students see their universities abandon academic values and scholarly pursuits to function as competitive, profit-making corporations. Commercialism and the development of the entrepreneurial university foster an environment in which higher education is seen as a private benefit, not a public good.⁹

Partly in response to galloping commercialism, some make a case for a return to traditional liberal arts education—an essentialist approach with roots in Plato’s antidemocratic, elitist theory of education.¹⁰ What is needed instead is, to quote Carol Geary Schneider, “a new liberal art” involving “integrative learning—focused around big problems and new connections between the academy and society.”¹¹ The concept of a new liberal art resonates with John Dewey’s rejection of abstract contemplation and his call for an engaged, problem-solving approach to scholarship and learning. In *Reconstruction in Philosophy*, he wrote: “The social philosopher, dwelling in the region of his concepts, ‘solves’ problems by showing the relationship of ideas, instead of helping men solve problems in the concrete by supplying them hypotheses to be used and tested in projects of reform.”¹²

“Communities have problems, universities have departments,” stated a report published by the Organization for Economic Cooperation and Development titled *The University and the Community* (1982).¹³ Beyond being a criticism of universities, that statement

neatly indicates another major reason why colleges and universities have not contributed as they should. Quite simply, their unintegrated, fragmented, internally conflictual structure and organization impede understanding and developing solutions to highly complex human and societal problems. Colleges and universities need to significantly decrease the fragmentation of disciplines, overspecialization, and division between and among the arts and sciences and the professions, since these departmental and disciplinary divisions have increased the isolation of higher education from society itself. Compounding this problem is what might be called the “disciplinary fallacy” afflicting American universities—namely, the misconception that faculty members are duty-bound to serve only the scholastic interests and preoccupations of their disciplines and have neither the responsibility nor the capacity to help their universities keep their longstanding promise to prepare undergraduates for lives of moral and civic responsibility.¹⁴

These impediments have reinforced, in Benjamin Franklin’s wonderful phrase, an “unaccountable prejudice in favor of ancient Customs and Habitudes”, rather than helping to realize Franklin’s original vision when founding the University of Pennsylvania to educate students with “an *Inclination* join’d with an *Ability* to serve Mankind, one’s Country, Friends and Family [Original Emphasis].”¹⁵

REDUCING THE OBSTACLES

So what is to be done to reduce the negative effects of dysfunctional traditions, commercialism and commodification, ivory

tower nostalgia, and intellectual and institutional fragmentation?

Simply put, engage locally. As colleges and universities work collaboratively with members of their local communities on universal problems (such as poverty, health inequities, substandard housing, and inadequate, unequal education) that are manifested locally, they will be better able to advance learning, research, teaching, and service.

The benefits of a local community focus for college and university civic engagement programs are manifold. Ongoing, continuous interaction is facilitated through work in an easily accessible location. Relationships of trust, so essential for effective partnerships and effective learning, are also built through day-to-day work on problems and issues of mutual concern. In addition, the local community provides a convenient setting in which service learning courses, community-based research courses, and related courses in different disciplines can work together on a complex problem to produce substantive results. Work in a university's local community, since it facilitates interaction across schools and disciplines, can also create interdisciplinary learning opportunities. Finally, the local community is a democratic real-world learning site in which community members and academics can pragmatically determine whether the work is making a real difference and whether *both* the neighborhood and the institution are better as a result of common efforts. A focus on local engagement is an extraordinarily promising strategy for realizing institutional mission and purpose. As elegantly expressed by Paul Pribbenow, president of Augsburg College, the "intersections of vocation and location" provide

wonderful opportunities for both the institution and the community.¹⁶

CONCLUSION AND RECOMMENDATIONS

In this article, we have tried to provide the rationale for an anchor institution approach to advancing teaching and research and improving the quality of life in our local communities. We have provided a brief overview of institutional efforts to support the University of Pennsylvania's role as an anchor institution, dedicated to creating sustainable, democratic partnerships with its neighbors in West Philadelphia. It certainly remains very much a work in progress. Increased faculty and student involvement through academically based community service and university-assisted community schools; the development of numerous sustained, democratic partnerships in the community; and the growing investment of institutional resources to support community economic development make it clear that we have come a long, long way. But we have miles and miles to go.

As discussed above, we believe an increased focus on local, democratic engagement is an extraordinarily promising strategy for realizing institutional mission and purpose and improving the quality of life in some of our most vulnerable communities. "Only connect!" The powerful, evocative epigraph to E. M. Forster's *Howard's End* captures the essence of our argument¹⁷—namely, that the necessary transformation of research universities is most likely to occur in the crucible of significant, serious, sustained engagement with local schools and their communities.

To conclude by placing our argument in a larger context, we turn to the work of the great American philosopher and educator John Dewey, who famously wrote: "Democracy must begin at

home, and its home is the neighborly community.”¹⁸ Democracy, he emphasized, has to be built on face-to-face interactions in which human beings work together cooperatively to solve the ongoing problems of life. In effect, we are updating Dewey and advocating the following proposition:

Democracy must begin at home, and its home is the truly engaged neighborly university and its local community partners. ■

REFERENCES

- ¹ Ira Harkavy et al., “Anchor Institutions as Partners in Building Successful Communities and Local Economies,” in *Retooling HUD for a Catalytic Federal Government: A Report to Secretary Shaun Donovan*, eds. Paul C. Brophy and Rachel D. Godsil, Philadelphia, PA: Penn Institute for Urban Research; 2009, pp. 147–169, available at: <http://www.margainc.com/initiatives/aitf>, accessed July 20, 2016.
- ² The Pew Charitable Trusts, “Philadelphia 2017: The State of the City,” 2017, available at: http://www.pewtrusts.org/~media/assets/2017/04/pri_philadelphia_2017_state_of_the_city.pdf, accessed April 9, 2017; Select Greater Philadelphia Council, “At the Heart of Good Business: Greater Philadelphia: The Place to Establish and Grow your Business,” 2016, available at: <http://www.selectgreaterphiladelphia.com/wp-content/uploads/2016/06/SGP-Report-2016-lowres.pdf>, accessed April 9, 2017.
- ³ Ira Harkavy, Matthew Hartley, Rita Hodges, and Joann Weeks, “The History and Development of a Partnership Approach to Improve Schools, Communities and Universities,” in *Developing Community Schools, Community Learning Centers, Extended-Service Schools and Multi-service Schools: International Exemplars for Practice, Policy and Research*, eds. Hal A. Lawson and Dolf van Veen, Cham, Switzerland: Springer International Publishing, 2016, pp. 303–321; Heather A. Davis, “Penn Recognized for Commitment to Economic Inclusion,” *Penn Current*, July 2, 2015, available at: <https://penncurrent.upenn.edu/2015-07-02/latest-news/penn-recognized-commitment-economic-inclusion>, accessed August 28, 2016.
- ⁴ Francis E. Johnston & Ira Harkavy, *The Obesity Culture: Strategies for Change: Public Health and University-Community Partnerships*. Cambridgeshire, UK: Smith-Gordon, 2009; Lee Benson, Ira Harkavy & John Puckett, *Dewey’s Dream: Universities and Democracies in an Age of Education Reform*, Philadelphia, PA: Temple University Press, 2007.
- ⁵ University City District, “West Philadelphia Skills Initiative: Results and Impact,” available at: <http://www.universitycity.org/impact>, accessed October 17, 2016.
- ⁶ The Philadelphia Higher Education Network for Neighborhood Development publishes weekly updates on its members’ outreach activities on the website PHENND.org.
- ⁷ Ira Harkavy et al., “Anchor Institutions as Partners in Building Successful Communities and Local Economies”; Marga Incorporated, “Anchor Institutions Task Force” Task Force Statement, New York: Marga, 2010, available at https://www.margainc.com/wp-content/uploads/2017/05/anchor_task_force_statement.pdf, accessed January 6, 2018.
- ⁸ Derek Bok, *Universities in the Marketplace: The Commercialization of Higher Education*, Princeton, NJ: Princeton University Press, 2003.
- ⁹ Although definitions vary, the concept of the entrepreneurial university grew out of the commodification and commercialization that higher education encourages, and the increased impact of the marketplace and

This article draws significantly from *Knowledge for Social Change: Bacon, Dewey and the Revolutionary Transformation of Research Universities in the Twenty-First Century* (2017) by Lee Benson, Ira Harkavy, John Puckett, Matthew Hartley, Rita A. Hodges, Francis E. Johnston and Joann Weeks, Philadelphia, PA: Temple University Press. It also draws from “Engaging Urban Universities as Anchor Institutions for Health Equity,” by Ira Harkavy, in *American Journal for Public Health*, Vol. 106 (12), December 2011.

- the profitmaking motive on university operations and goals. See Sheila Slaughter and Larry L. Leslie, *Politics, Policies, and the Entrepreneurial University*, Baltimore, MD: Johns Hopkins University Press, 1997; Burton R. Clark, *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*, Oxford: Pergamon Press, 1998. For a more recent discussion that highlights the lack of definitional agreement in Europe, where the concept has gained particular currency, see Organisation for Economic Co-operation and Development, *A Guiding Framework for Entrepreneurial Universities*, final version, 18 December 2012, available at <https://www.oecd.org/site/cfecpr/EC-OECD%20Entrepreneurial%20Universities%20Framework.pdf>, accessed August 22, 2016.
- ¹⁰ For example, James Mulholland, “Academics: Forget about Public Engagement, Stay in Your Ivory Towers,” *The Guardian*, 10 December 2015, <https://www.theguardian.com/higher-education-network/2015/dec/10/academics-forget-about-public-engagement-stay-in-your-ivory-towers>.
 - ¹¹ Carol Geary Schneider, “Making Excellence Inclusive: Liberal Education and America’s Promise,” *Liberal Education* 91, no. 2, 2005, p. 13; Andrew Delbanco, *College: What It Was, Is, and Should Be*, Princeton, NJ: Princeton University Press, 2012, pp. 175–176.
 - ¹² John Dewey, *Reconstruction in Philosophy*, in *The Middle Works of John Dewey, 1899–1924*, vol. 12, ed. Jo Ann Boydston, Carbondale: Southern Illinois University, 1978, pp. 189–190; digitally reproduced in Larry Hickman, ed., *The Collected Works of John Dewey, 1882–1953: The Electronic Edition*, Charlottesville, VA: InteLex, 1996.
 - ¹³ Center for Educational Research and Innovation, *The University and the Community: The Problems of Changing Relationships*, Paris: Organisation for Economic Co-operation and Development, 1982, p. 127.
 - ¹⁴ Stanley Fish is arguably the most outspoken proponent of the “disciplinary fallacy;” see his *Save the World on Your Own Time*, New York: Oxford University Press, 2008.
 - ¹⁵ Meyer Reinhold, “Opponents of Classical Learning in America During the Revolutionary Period,” *Proceedings of the American Philosophical Society*, 112 (4), 1968, p. 224; Benjamin Franklin, Proposals Relating to the Education of Youth in Pennsylvania [sic], 1749, reprinted in *Benjamin Franklin on Education*, ed. John Hardin Best, New York, NY: Teachers College Press, 1962.
 - ¹⁶ Paul Pribbenow, “Lessons on Vocation and Location: The Saga of Augsburg College as Urban Settlement,” *World and Word* 34, no. 2, 2014, p. 158.
 - ¹⁷ E. M. Forster, *Howard’s End*, Toronto: William Briggs, 1911, front matter.
 - ¹⁸ John Dewey, *The Public and Its Problems*, in *The Later Works of John Dewey, 1925–1953*, vol. 2, ed. Jo Ann Boydston, Carbondale: Southern Illinois University, 1981, p. 368; digitally reproduced in Larry Hickman, *Collected Works of John Dewey*.

Leveraging Opportunity: How a College and a University Can Engage in Community Development as a Social Justice Mission

Gregory M. Anderson, Ph.D.

When attempting to answer the ubiquitous question regarding how universities integrate research, policy and practice in building social justice and community development initiatives, let me begin by stating that I do not believe that most universities necessarily do this integration work well nor comprehensively. Moreover, despite the innovative examples provided here in the symposium, I would contend that generally speaking, universities do a much better job of touting and celebrating this kind of work than sustaining and scaling up community development initiatives through our institutions. In making this claim, I do not want to leave anyone with a false impression; in no way am I diminishing the importance of the public good undergirding the overall mission of higher education. Nor am I asserting that there are not university examples of sustained community development initiatives. Rather, I am merely highlighting the fact that interactions between surrounding neighborhoods/communities and universities are complicated by differences in relations of power, resources, and conflicting expectations and interpretations regarding what constitute successful outcomes.

So far, I do not believe anything stated here is at all controversial and is typically reflected in the language often associated with university and community relations such as “imminent domain” or “town and gown”. Furthermore, the complex nature of relationships between universities, neighborhoods and communities is in my view, a somewhat

universal phenomenon. Indeed, I have witnessed first-hand through my own research in South Africa¹ that similar dynamics and tensions exist in very different locations, whether referring to urban forces that shape the lives in neighborhoods in Cape Town or North Philadelphia and the attendant tensions which can strain university and community relations. This somewhat sober introduction has been provided to simply remind people that community development initiatives require vigilance, intense self-reflection and interrogation, and most importantly, a process of institutional codification to ensure continuity and hopefully promote replicable or scalable impact. Now that I have provided my sociological disclaimer, let me address the question of integration head on as this is the most difficult aspect of transformative community development work since it requires, in my opinion, four components:

- 1) University leadership seriously (as opposed to mostly rhetorically) committed to enhancing a public good, social justice mission, and informing and shaping local, state and national policy by contributing in-kind resources as a starting point for collaboration.
- 2) Progressive faculty open to viewing impact more broadly in relation to not only their respective research agendas, but also the utilization of their students (internships, assistantships, etc.) and the realignment of their academic programs. This also entails a willingness to apply

their collective expertise to evaluate and improve existing practices and services and introduce new assessments, interventions and pilots.

- 3) Coordination of asset based partnerships between schools, universities, and non-profit and philanthropic organizations, based on a collaborative recognition of respective strengths and weaknesses and a willingness to share resources differentially depending on need and priorities.
- 4) Community leaders, neighborhood associations, networks and government agencies open to constructive dialogue with new and/or different service arrangements and providers.

When these four components of integration are aligned and in synch, universities and colleges are capable of doing impactful and sustaining work in partnership with neighborhoods and communities. A case in point involving Temple University is the Choice Neighborhood initiative in North Philadelphia. Temple, and in particular, the College of Education, is the lead educational partner for the \$30 million Urban Housing Development (HUD) grant awarded to the City of Philadelphia. This grant essentially involves the complete overhaul of a public housing complex called Norris Apartments, which is adjacent to Temple University. In addition to the construction of a new public and mixed-income housing complex, the grant requires the provision of a number of Pre-K, K-8, and after-school activities attached to long-term goals and a host of educational outcomes.

Before I describe in greater detail the different elements of the community development initiative, however, I need to

highlight once again the vagaries of university and community relations, as the Choice Neighborhood grant almost did not come to fruition. The reason for this “near miss” revolved primarily around a concern that the University could potentially overcommit institutional resources to the community development initiative. To address this concern, my colleagues in the College quickly assembled a matrix of in-kind resources and binding agreements between several service-related units on campus to ensure a sufficient number of student volunteers to support the educational programming required by the HUD grant. We also had to demonstrate to our President that the university would not be on the hook for providing unanticipated inputs that could inadvertently generate expenses not accounted for in the budget. Finally, the College had to convince the residents of Norris apartments that we would work in partnership with their coalition to consult with, and ultimately empower, the community and its leaders to sustain programming after the HUD grant expired.

All of what we might call the above due diligence work had to occur within three months of the submission of the grant and while preparing with the Philadelphia Mayor’s staff to make an accompanying presentation to the selection committee. I would be remiss if I did not also point out that we completed a significant chunk of this foundational work while I was still transitioning from Colorado to Temple Universityⁱⁱ. I share this to highlight the serendipitous and fine line that separates a successful community development initiative from a concept that never sees the light of the day.

Once the HUD grant was awarded, I started to fully grasp the opportunity for the college and university to serve as an anchor for instigating change in a geographically designated area with historic ties to Temple. Due to the nature of the Choice Neighborhood initiative many of the key stakeholders were already involved in the work. These stakeholders included the Philadelphia School District (SDP), the Philadelphia Housing Authority (PHA) and several long-standing non-profit organizations operating in the region. Furthermore, both college and university resources (particularly those involving students and to a lesser degree, faculty) were already committed to supporting targeted (Pre-K to K8) educational and community programs and engaged in setting and evaluating milestones and long-term outcomes. Initially, the College of Education was primarily responsible for assessing the efficacy of the educational activities with some oversight of the respective non-profits, Pre-K centers and K-8 schools tasked collectively with the delivery of related services. However, early on in the planning process, my colleagues and I saw what might be called a leveraging moment to develop a comprehensive, community place-based, multi-generational strategy. This anchor strategy hinged on a desire to better align our historic access mission and social justice values with our academic programs and student internships (at both undergraduate and graduate levels)ⁱⁱⁱ. Equally important, we began to look for opportunities to link our faculty expertise by incenting individual as well as more institutional (existing centers, institutes and federally funded programming) research agendas to congeal around collaboratively funded projects. Starting with the recognition that our collective strength as a College of Education was its hybridity vis-

vis a multitude of disciplines and fields operating in our academic programs, centers and institutes, it became clearer that our expertise and research capacities spanned life-long learning opportunities and encapsulated both rigorous and diverse methodologies^{iv}. With a growing body of evidence and research pointing to intergenerational approaches as the most effective way to revitalize neighborhoods and communities and address poverty, we decided to “double down” if you will on the investments already made via the \$30 million HUD grant. The primary intent was to build on and expand the activities already promised in the choice neighborhood initiative by exploring the possibility of creating a multigenerational facility on the outskirts of Temple University. The proposed facility (anticipated board approval in May 2017 for construction) would house a 4-star, Keystone rated Early Childhood Center and a host of integrational clinical and assessment services featuring: dental, medical, as well as family counseling clinics, workforce/professional development programming, educational testing, as well as college and career-ready advising. The reality was that the vast majority of proposed services were already being provided in a piecemeal fashion both within my college (though our academic programming and by a number of our centers, institutes and clinics) and among other academic units on campus. The challenge was to cohere and enhance these services in such a manner that the proposed facility could be embraced as a community, as opposed to university, asset.

To accomplish this goal, we needed to overcome several obstacles involving restricted university funding streams (bond/debt capacity issues) and limited operations (no billing or fee

collection capacity as well as staffing and other related resource constraints) at the college-level. In an attempt to overcome the university funding stream challenge, I convinced Temple University's Board of Trustees (BOT) to approve the purchase of a vacant lot near the edge of campus previously owned by the School District of Philadelphia in the hope of developing an Early Learning and Community Engagement Center. In doing so, I pledged to the university leadership that I would within a two-year period come up with a plan for their consideration that could support the building of a new facility without undermining the university's bond capacity or increasing its debt.

This proposed plan features, on the one hand, a public-private partnership in which an outside developer would construct and own the new facility where the Early Childhood and Community Engagement Center would operate. On the other hand, Temple University maintains ownership over the property and essentially guarantees paying all rental charges and is responsible for the master lease over a 30 to 50-year period. Furthermore, the developer would seek New Market Tax Credits to reduce the overall cost of the building and to keep the square footage rental charges below market value. We are now in the final stages of negotiations with the developer and I hope to have BOT approval in May 2017.

The second challenge concerned the limited operational capacity of the college. By proposing a public-private partnership, I had to make certain that the college could demonstrate to the university that the organizations and units operating in the new facility could indeed afford to cover the rental charges over a designated period of time as enshrined in a long-term master lease. This meant that I had to simultaneously

commit to moving a portion of my College's operations, and in particular, the related centers, institutes and clinics currently under the auspices of the college, to the new facility. I was able to demonstrate this possibility financially because under our responsibility center management (RCM) budgeting system, my college was already paying square footage rental charges to the university. In other words, I could substitute paying rent to the university by covering a significant chunk of the rental charges in the new facility and paying the developer instead. In turn, the university would recover valuable space given up by my college that was desired by other academic units, who were willing to pay Temple increased rental charges to expand their footprint.

Having created a business model that made a public-private partnership potentially viable, we then needed to mitigate the financial risk to the college by seeking outside non-profit partners and other academic units on campus willing to operate and pay rent within the new proposed facility. Truth be told, there was no way for several reasons, that the college could operate a facility like the one proposed without partners. In the first place, while we certainly had the faculty expertise to design a cutting edge Pre-K curriculum, as well as early childhood and elementary education pre-service teachers to participate in the classrooms, we did not have the permanent teaching staff. In addition, the college did not have the staffing infrastructure to sustain an early childhood center nor the billing capacity to draw down Head Start funds. As a consequence, we explored potential partnerships with several non-profit early childhood providers to assist the college. With the support of a planning grant from the Fund for Quality, Public Health Management Corp and William Penn

Foundation, the college entered into a proposed agreement with the Montgomery Early Learning Center (MELC). MELC has the vision, the experience in similarly challenged neighborhoods, and the organizational stability required to strike up an effective partnership with the college. MELC also had the necessary capital and billing capacity to commit in principle to paying the rental charges required by the developer. We have struck similar potential agreements with other high quality non-profit organizations. For example, we are seeking to partner with the Jewish Educational and Vocational Services (JEVS) to provide and expand adult workforce development training in partnership with the college's Center for Technical Education and our Intergenerational Center. We are also working with SPIN Inc., to partner with our family counseling, testing and applied behavioral analysis clinics and our Institute on Disabilities.

Again, it is important to note that not only do these long-standing non-profit organizations extend the potential impact and quality of the multi-generational services offered to the community, but they also provide a crucial source of rental fees to be paid to the developer or Temple University (depending ultimately if the public-private option is approved to build the new facility). Moreover, these potential partners offered the possibility to collect different and new (for the college) sources of revenue in the form of state and federal dollars available to us via new fee-for-service arrangements. There is one other component of the proposed Early Learning and Community Engagement Center that is both noteworthy and critical to the expansion of services: the proposed dental clinic and medical practice to be run by our colleagues in the Schools of Dentistry and Medicine,

respectfully. Without these services and expertise, the proposed Center would not have garnered what might be called the "cross-over" capacity, which is required to deepen the buy-in of the university. Such buy-in is important to sustain a community development initiative and to serve as an open invitation for other academic units and university services to potentially join and collectively augment efforts to revitalize North Philadelphia neighborhoods and communities.

Having taken considerable time and space to lay out how the college and Temple University extended its shared vision and mission for rebuilding the urban economy, I want to now turn to the specific question of what incentives and motivations can be shared for engaging faculty and staff. I should point out that on the staff side, the motivations were frankly much easier to identify and harness. Simply stated, the composition of the staff at Temple University, like many public, urban universities and colleges, is far more diverse (age, race, ethnicity, socio-economic status) than the faculty. As a result, efforts to create meaningful opportunities to support communities are more often than not, met with great enthusiasm by our staff in part because many of them can relate to the lived experiences of the surrounding neighborhoods.

In addition, the historic public access mission of Temple University resonates with both progressive staff and faculty. Although it may be hard to quantify, there is a palpable connection to the mission of the university that does indeed inform how our staff, faculty and students view themselves and their respective vocations as servant leaders. This connection is especially powerful among our students, who to varying degrees chose Temple University because of its urban location and its social justice

mission. Moreover, when factoring in that the vast majority of the students in the College of Education require internships, practicum placements, clinical observations, and in-classroom experiences to complete their degrees and obtain the necessary certifications, it should come as little surprise that work in the surrounding communities, schools and neighborhoods are taken up by students with earnestness and a deep-rooted idealism^v.

However, I do not want to overstate the power of a “calling” to help others, especially in the case of faculty, since their motivations are more complicated and hinge on providing incentives related to what academics care most about: their individual subject matter or content areas. Indeed, the best way to reach the hearts and minds of faculty is to create opportunities for their scholarly work to garner greater support, resources and attention by facilitating new collaborations that enable documented impact in their fields of practice, and the arenas of policy and research. In this regard, my job as dean is fairly straightforward, albeit not always easily executed: that is, hire great faculty, find more sponsored funding and philanthropic dollars and create better infrastructural support to allow for the highest level of faculty productivity. In the case of the proposed Center for Early Childhood and Community Engagement, I was able to appeal to several areas of faculty strength in the college. These areas ranged from early childhood literacy, special education, disabilities studies and clinical assessments featuring school, counseling and educational psychology, to organizational development and adult learning. Equally important, the proposed Center gave me the ability to attract new faculty who were interested in social justice and community engagement, and who were willing to partner

with existing assets in the college or create new entities to address gaps in practice, research and policy.

Two examples come to mind regarding how the community development initiative can serve as a magnet for new and exciting faculty. The first occurred with much fanfare and a considerable degree of controversy: the recent hiring of Sara Goldrick-Rab. Some of you might know Sara’s important work on college access and affordability, while others may recognize her more for her social media exploits and recent inclusion on an ominous national watch list targeting progressive faculty. We were able to bring Sara to Temple because of important college assets promoting equity, such as our Gear Up and Upward Bound grants. In turn, Goldrick-Rab was interested in creating a proposed, HOPE Center for College, Community, and Justice. This Center is committed to translational research focused on rethinking and restructuring higher education, social policies, practices and resources to create opportunities for all students to complete college degrees. Sara’s new proposed center is slotted to be part of our multi-generational community engagement facility.

The second example of the magnetic power of the community development initiative and our anchored, place-based strategy, is the recent cluster hiring of faculty interested in creating another new center on assessment and evaluation. We have attracted and hired no less than five new faculty just in the last three months, who have all committed to contributing to this new proposed assessment and evaluation center. In combination with key existing faculty at the college, we now have the breadth of subject matter and qualitative and quantitative methodological expertise to do case studies and

large scale evaluations on a host of topics. These topics span toddlers and infants, early childhood literacy, middle grades science and math, career and college-readiness programming, mental and behavioral health, organizational development and adult learning across the life span.

Without the capacity to validate what works as well as what is not successful in terms of practices, pilots and interventions in neighborhoods and schools, there is no hope of replicating and scaling up community development initiatives. To enhance validation efforts, I have strategically used one-time funds to provide startup for new faculty to use with two important qualifications: first, that the total amount of dollars available cannot be individually released without faculty contributing to research in the areas of assessment and evaluation; and second, a portion of the available funds must be used to support other colleagues in the college, who are capable and willing to collaborate on joint projects.

By building incentives around assessment and evaluation work of new and existing faculty, the motivations of our scholarship and research in the areas of teacher education, school redesign and leadership, have been refocused. In particular, we are using our assessment and evaluation acumen to serve as a catalyst for another crucial component of our place-based, community development initiative in north Philadelphia: the creation of a new proposed school network partnership with the SDP.

This new partnership hinges on the college working with a finite number of K-8 schools, centers for technical education (CTEs) and secondary schools primarily located in Network 4 of the Philadelphia School District; a grouping of North Philadelphia schools under the leadership of a regional superintendent. The

underlying intent of this complementary strategy is to once again utilize the full breadth of faculty and student expertise and related academic programming to promote the turnaround or transformation of the regional network that serves a large number of school-age children in the immediate neighborhoods surrounding Temple University. The aspirational goal of this targeted work is for students, teachers, and leaders to learn and operate in healthy, sustainable ecosystems that improve educational and social/emotional/behavioral/physical outcomes. To this end, we have committed the college to engaging in four key areas to expand opportunities for north Philadelphia youth and prepare them for college and career:

- 1) Evaluation, Assessment, and Monitoring for Ongoing Decision-Making in all partner schools.
- 2) Support Core Instructional Delivery (first phase involves literacy in K-5 schools).
- 3) Social-Emotional, Mental, Behavioral, and Physical Health (RTI, Trauma-informed care, screeners, etc.) interventions for students and teachers.
- 4) Talent Recruitment, Professional Development, and Retention (using our Teacher Quality Partnership funded Residency-based teacher education program and a host of PD provided by students and faculty).

We are currently in negotiations with one of the largest Philadelphia-based philanthropic foundations to receive a 3-5 year, multi-million dollar grant to support our partnership with Network 4. Our intention is to build sustainable and validated models of improvement and excellence in the neighborhood schools.

Combined, our nascent partnership with a specific network of schools and the anchoring of

the proposed Early Childhood and Community Engagement Center, is emblematic of a multi-generational, place-based strategy that expands on the community development initiative stemming from the Choice Neighborhood grant. We believe that the approach is both sustainable and serves the needs of our undergraduate and graduate students, while also having the potential to improve the life chances of people residing in neighborhoods and communities surrounding Temple University. This lifelong learning model features an integrated framework to collaborate with other academic units on campus, in partnership with non-profit and philanthropic organizations, government agencies and the school district.

In making this work central to our social justice mission and values, we are not naïve to either the challenges ahead, or the countless efforts of universities that have failed to sustain these models or generate lasting and positive outcomes. In fact, it is our principled belief and commitment to assessment and evaluation that we hope will drive our practice and when necessary, compel us to change our approaches. Our research will inform policy and also help to hold all partners accountable to ensure that the programs, pilots, and interventions, both within and outside the college and university, generate high quality services supported by evidence.

There is much talk these days about the notion of collective impact and I must admit that, on occasion, I have been swayed by the term. In full disclosure, I have used the concept of collective impact to frame the work we are doing to enact change and revitalize neighborhoods. I have since learned however, that collective impact is more a process, as opposed to a ready-made framework; it implies a set of strategies that we as of yet, do not know whether the

planned activities and practices, will in combination, produce transformative results. This somewhat humbling observation is critical to remind us all daily that our biggest challenge is, and will continue to be, managing the relationship between the university and impacted neighborhoods and communities.

Indeed, in meeting with community leaders and visiting churches and neighborhood gatherings, I have come to understand and appreciate that the big “T” logo that stands for Temple, is frequently viewed as standing instead for “takeover” in the eyes of some folks in the community. In order to address these perceptions, the work before us must always begin and end with a commitment to listening to, and learning from, the surrounding communities, neighborhood associations and their organizations and leaders. Without meaningful and respectful dialogue that produces short-term and longitudinal results, we run the real risk of alienating neighborhoods and communities, and ultimately failing to fulfil our social justice mission.

A case in point involves the establishment of an after-school program in Norris apartments. After community leaders expressed deep frustration with another non-profit organization charged with providing the service, we were asked by the Philadelphia Housing Authority to “takeover” the program. After listening intently, the Norris residents’ concerns, we came to the conclusion that the after-school program was initially unsuccessful because the prior non-profit partner did not include “a training the trainers” model to sustain programming once the choice neighborhood funding was inevitably spent down. The residents’ desire to redefine the after-school program represented a simple, yet perfectly

rational perspective that hinged on a self-empowering model of engagement. The residents rightly felt that by providing the neighborhood with resources was a necessary but insufficient condition to ensuring long-term success. Instead, what was required was the provision of training of specifically targeted residents committed to helping support their children and run the after school program on their own. This approach meant that the dollars available to support the after-school work were better utilized by residents seeking training rather than the College of Education parachuting in to run the program ourselves.

I conclude with this small example because it was a turning point in our relationship with a neighborhood and a residential complex that our faculty, staff and students pass each day on their way to work or study. Although the total amount of funding involved was tiny in the grand scheme of things, we were able to build trust together. Without such trust, there is no ability to move the needle and sustain transformative work between communities, neighborhoods and universities. The lesson gleaned: folks want to do for themselves as opposed to others doing for them, as there is no better approach to promote self-determination and important role modeling in the community.

■

REFERENCES

ⁱ See Gregory M. Anderson, *Building a People's University in South Africa: Race, Compensatory Education and the Limits of Democratic Reform* (Peter Lang, Inc., 2002).

ⁱⁱ I need to warmly acknowledge James Earl Davis, the college's Bernard Watson Endowed Chair in Urban Education. James Earl, who prior to my arrival, served as the interim dean was instrumental in both stewarding the college through the choice neighborhood proposal stage and advocating for Temple University to serve as the lead educational partner from the HUD grant and the City of Philadelphia.

ⁱⁱⁱ For instance, we initiated a college-wide audit of all the required practicum and internship sites for our undergraduate and graduate students to see where we could provide a critical mass of support and greater overlap of our work in schools, non-profits and childhood and mental health organizations operating in the region. We also introduced a new undergraduate degree, Human Development and Community Engagement, which we carefully built new internships around to provide our students with new "non-teacher education" clinical experiences.

^{iv} Indeed, the College boasts a myriad of critical lens and skill sets ranging from school, counseling and educational psychology, applied behavioral analysis and special education, English as a second language, adult organizational development and higher education, sociology and urban studies, history and public policy, to traditional teacher preparation and school leadership programming.

^v Illustrative of this vocational, social justice impetus is the growth of our relatively new, non-teacher education related, Human Development and Community Engagement Degree, which despite being introduced only two years ago without great fanfare and marketing, is now our second largest undergraduate degree in the college.

