Summer 2017

Innovative Professional Network Echo Method Improves Recruitment of Diverse and Multicultural Students to Health Administration

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Abstract

Health administration professions do not reflect US demographic and economic structure. Pragmatically, new programs are resource-limited. Novel, reliable, and valid recruitment and admission strategies are needed to address this gap. We aimed to create replicable, low-cost recruitment to support multicultural diversity at the graduate level and subsequently in healthcare leadership. A pilot survey of healthcare leaders and students identified top trends, hiring needs, and sustainable opportunities. Health data analytics, outcomes research, and process improvement were consistently identified by both groups. The new MS in Health Economic and Clinical Outcomes Research program emphasizes these areas, ensuring upward mobility of graduates. Following standard process improvement methodologies, recruitment processes were mapped and gaps identified. The innovative Professional Network Echo Method (PN ECHO) increased the percent of multicultural and racially diverse students to 32% and 46%, respectively, using a targeted systems approach flowchart of LinkedIn™, Slate™ enrollment management software, with strategies to connect, funnel, and evaluate diverse potential students. To support students of vastly variable backgrounds, professional skills were emphasized throughout the program, with 100% retention. Consistent processes and forms support measurable inclusivity and a sustainable open network with minimal training. PN ECHO improves potential for increased diversity and multicultural leadership in the executive suite.

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INTRODUCTION

Diversity among healthcare leaders and executives is likely to result in increased value and efficiency for healthcare organizations, as well as improved outcomes for patients (Witt/Kieffer, 2011). Despite this, demographics of healthcare provider professions currently do not reflect the increasingly diverse demographic structure in the United States (Smedley, Stith, & Nelson, 2003). While representation of racially and ethnically diverse employees in all types of healthcare is growing, the representation of diverse employees in healthcare management positions remains low (American College of Healthcare Executives, 2015). Furthermore, women, regardless of race or ethnicity, hold far fewer healthcare leadership positions than their male counterparts (American College of Healthcare Executives, 2012).

To maximize the potential benefits of diverse leadership, healthcare organizations must identify well-qualified candidates who will bring knowledge, skills, and diversity into their executive suites. Thus, it is the role of Health Administration graduate programs to identify, prepare, and ultimately provide these future candidates. To produce the most desirable candidates, it is necessary to first identify the areas of health services with the highest projected hiring growth. To this end, an informal survey was conducted by the university's Department of Health Services Administration. This survey (Table 1) asked current healthcare leaders and undergraduate/master's Health Services Administration (HSA) students to identify top healthcare-related trends, hiring needs, and opportunities (Administration, 2014). Health data analytics, outcomes research, and process improvement were the domains consistently identified by both groups. This survey indicated that value and evidence-based outcomes research through health data analytics are key to the next era of population and healthcare management, upward mobility of graduates in healthcare-related fields, and leadership in the executive suite. These results prompted the development of the university's Master of Science in Health Economic and Clinical Outcomes Research (MS-HECOR) program.

Table 1

"Where the Puck is Going" survey results

	Expert Group*	Student Group**
Total response rate	104/780 (13%)	34/211 (16%)
What health professionals are in in short supply based on challenges you have in hiring?		
Health Data Analyst	42%	53%
Performance Improvement Engineer	23%	n/a

Table 1, *cont.*

What are the top 3 "big ideas/trends" to prepare for by 2025 (in 10 years)?		
Volume to Value	55%	49%
Big Data	n/a	52%
Health Outcomes Research	44%	n/a
Team-based Healthcare	37%	42%
Culture Change	n/a	46%
To fulfill those trends, what jobs or skill-sets will evolve the most by 2025?		
Big Data Manager	55%	53%
Electronic Health Record Analyst	46%	56%
Quality Process Improvement Professional	43%	44%
Culture Change Agent	n/a	38%
What new programs do you recommend Xavier considers offering by 2025 (in 10 years)?		
Health Data Analyst	66%	66%
Health Economics Analyst	41%	31%

*Master of Health Services Administration Alumni, Preceptors, Advisory Board, Faculty

**Master of Health Services Administration and Bachelor of Science in Health Services Administration Students

Full survey available on request

Graduates of MS-HECOR will possess desirable skills and knowledge needed to meet current and future societal healthcare needs. While MS-HECOR emphasizes the importance of cultural issues related to healthcare and patient outcomes, these concepts cannot fully be explored, understood, and internalized by curriculum alone. A diverse cohort of MS-HECOR students serves to enrich and advance the capabilities of MS-HECOR graduates in intangible ways that simply cannot otherwise be accomplished. That said, the recruitment and enrollment of a diverse cohort can present serious challenges (Griffith, Lobes, & Dalston, 2001). Graduate program directors are faced with fulfilling enrollment projections while simultaneously ensuring that the matriculates are both competent and diverse (White & Vetrovec, 2008). In 2012, the top pressing issue identified by graduate deans were recruitment, admissions, and enrollment management (Schools, 2012). Within these categories, respondents specifically mentioned challenges in attracting a

diverse applicant pool, recruiting international students, and recruiting quality graduate students. Recruitment today requires more active recruitment than processes used in the past, and the internet is a key component that must be utilized (White & Vetrovec, 2008). Among top-ranked master of business administration programs, one study found that all programs relied on social media, and the most frequently cited reason for using social media was student recruitment (Barnes, 2012). Despite this, inconsistencies have been shown to exist between the perceived effectiveness of graduate recruitment techniques (including use of social media), and the degree to which these techniques are actually implemented (Research, 2014). To date, there is a paucity of recent peer-reviewed literature addressing successful strategies to recruit a diverse student body to health administration programs. Reliable and valid recruitment and retention strategies are needed. This article describes our efforts to develop and implement a novel method specifically designed to increase the level of diversity among MS-HECOR applicants and matriculates.

Methods

Efforts to increase enrollment of diverse and multicultural students focused on the recently developed MS-HECOR program. These efforts were implemented during recruitment and enrollment of the second MS-HECOR cohort, Cohort 2 (they were not applied during the recruitment and enrollment of the initial MS-HECOR cohort, Cohort 1). To recruit and enroll applicants that were both well-qualified and culturally diverse, a new and innovative method, which we have named the Professional Network Echo Method (PN ECHO), was developed and piloted. A non-premium LinkedIn™ account, established under the name of the program director, was used to promote the program. A personal account was selected over a company account to create a more personal connection with the potential applicant. To improve process reliability, the director developed and employed a strategic algorithm, PN ECHO, to determine whether to initiate a connection with a suggested contact or accept a connection request. PN ECHO relied upon current career position, multicultural attributes, employment or receipt of degree in a relevant field, and additional favorable attributes as criteria for acceptance (Figure 1). Upon initiation of PN ECHO, all connections from that point forward were limited to potential students meeting the criteria dictated by the algorithm; other potential connections were ignored. Connections that existed prior to the initiation of PN ECHO were retained, but new connections were limited to only potential students who met the criteria specified by PN ECHO. Ignoring requests and suggestions not meeting criteria capitalized on the underpinnings of LinkedIn™. If only connections accepted or attempted were to people meeting the

PN ECHO inclusion criteria (i.e. potentially desirable students), LinkedIn™ would use their LinkedIn™ connections and email contacts, etc. to generate additional suggestions in the People You May Know section.

Figure 1

Professional Network Echo Method Flowchart

NOTE: LinkedIn™ Profile was scanned for key inclusion criteria during the recruitment period January- August 2017 with first-degree connections ~500 in January 2017 and increased connections using the PN Echo Method (n = 3225 first-degree with ~2.5 million possible second- and third-degree connections).

The PN ECHO method was created to improve process reliability. Admissions processes and forms for the recently developed MS-HECOR program were created to ensure a consistent, reliable, and easily reproducible process, with minimal training requirements for staff and faculty (Figure 2).

The interview form used by the flagship Master of Health Services Administration program was revised to objectively evaluate quantitative aptitude for the new MS-HECOR program (Figure 2). An MS-HECOR Admissions Selection Committee comprised of principal and adjunct faculty was formed to trial the interview form. Interviews were conducted by phone, to reduce potential interviewer bias.

Figure 2

Admissions Interview Form

University	Applicant Name:
Health Services Administration	Academic Potential: University, degree, year, major, minors, GPA:
	Interview Date:
	Interviewer:

1. How did you hear about the program?
2. SELF: Tell us about yourself—we have your resume; what kind of a student are you?
3. PROGRAM: What do you know about the Health Economic & Clinical Outcomes Research program at Xavier? Why did you select it? Are you comfortable with our emphasis on service and ethical decision-making in outcomes research?
4. COMMITMENT: What talents and skills do you have that could support the other students? What talents and skills do you have that could support the HECOR program now and in future?
5. QUANTITATIVE BACKGROUND: You may wish to tell us more about your quantitative projects and courses, such as math, data analysis, statistics, chemistry, physics, accounting, economics, finance. Are you comfortable with your quantitative courses?
6. TEAMWORK: Tell us more about your team projects. What was your role on the team? Have you completed any research projects? Do you have any work you would like us to see?
7. SUCCESS: What do you think it will take to be successful as a student here at Xavier?
8. MOTIVATION: What is health outcomes research? What is your career goal after you complete this degree?
9. Do you have questions for us?
10. Is there anything else that you would like to tell us, anything that we may have missed?

APPLICATION COMPLETE at time of interview?	*Regionally accredited?	**Known to XU?	Personal Statement	Transcript	Resume	Letter 1	Letter 2

*NOTE: If degree is not from a U.S. regionally accredited college/university, *additional time/materials are required.*
**NOTE: Is this candidate known to Xavier University, faculty, staff, alumni, or their networks?

Date, if >1	IMPRESSION RATINGS	yes/no	score	percentile	≥ -1 SD yes/no
	Grade "B" or 3.0 in introductory statistics, UG or Grad.				
	Examples of quantitative work reflected on the transcript				
	Examples of quantitative work reflected on the resume				
	Examples of teamwork reflected on the resume				
	Examples of health related work reflected on the resume				
	Examples of research reflected on the resume				
	GRE, if available: Quantitative				
	GRE, if available: Analytic Writing				
	GMAT, if available: Quantitative				
	GMAT, if available: Analytic writing				
	GMAT, if available: Integrated Reasoning				

IMPRESSION RATINGS	Excellent	Good	Fair	Marginal	Poor
Scholastic Aptitude (based on scores)					
Demonstrated quantitative background and interest					
Demonstrates and clearly articulates career goals					
Maturity level					
Critical thinking skills based on responses					
Writing ability in the Personal Statement of Intent					
Content of the essay?					
Oral communication/ Interpersonal skills (ease of conversation, manners)					
Self confidence					

Rev. 2016 June

☐ I strongly recommend this applicant.
☐ I recommend this applicant for acceptance.
☐ I have reservations about this applicant for these reasons:
☐ I do not recommend this applicant for these reasons:

Time spent establishing contacts was recorded for Cohort 1 and Cohort 2. A time study (Table 2) was undertaken to compare recruitment methods used for Cohort 1 to the innovative PN ECHO method, and ascertain that the new method was not more labor intensive. Contact minutes were defined as total minutes spent in direct contact with potential students. Contact minutes were estimated from the number and type of contacts (i.e., via email, phone, tours, meetings and admission interview). Indirect contact time via LinkedIn™ and Slate™ enrollment management system software was not included. Success is defined as an admitted graduate student. Failure is defined as inquiry from a potential student that does not result in a completed application, successful interview, and offer of admission.

Table 2

Time Study of Recruitment Methods for Cohorts 1 and 2

	Cohort 1 Contact minutes per person		Cohort 2 Contact minutes per person	
	Mean	Range	Mean	Range
Success	374	195-515	370	90-845
Failure	66	20-450	56	20-210

NOTE: Recruitment contact time for cohorts one and two was similar for both successes and failures; therefore, the new PN ECHO method did not increase recruitment time. Successful enrollment requires about six hours of actual direct contact time by the recruiter; unsuccessful recruitment attempts require about one hour of direct contact time to follow-up on inquiries.

Improved recruitment of diverse and multicultural students was measured by comparing admission demographics for MS-HECOR by recruitment method (Tables 3a and 3b). Number admitted was defined as a completed application, successful interview, and offer of admission. Number enrolled was defined as a successful admission, course registration, and bursar payment. Loss codes included: accepted similar program, accepted alternate program, visa issues, and financial insufficiency. Applicants not admitted are outside the scope of this manuscript.

Table 3a

Admission Demographics for MS-HECOR by Recruitment Method

Year Admitted	Cohort	Number Admitted & Enrolled	Recruitment Method	Female (%)
2015	On-ground Cohort 1	Admitted: 7 Enrolled: 7	Corporate & Personal Communications	71%
2016	On-ground Cohort 2	Admitted: 13 Enrolled: 9 Loss codes: 1,2,3,4	Professional Network Echo	54%

Table 3b

Admission Demographics for MS-HECOR by Recruitment Method

Year Admitted	Race (%)	Country of Origin (%)	Current Citizenship (%)	Prior Major or Field (*n*)
2015	White (100%)	US (100%)	US (100%)	BS (2) HS (2) PHS (1) BSS (1) QS (1) BEF (0)
2016	White (54%) Black (31%) Asian (15%)	US (68%) France (8%) Ghana (8%) India (8%) Tanzania (8%)	US (76%) Ghana (8%) France (8%) India (8%)	BS (6) HS (1) PHS (0) BSS (1) QS (1) BEF (4)

NOTE: BS = Biological Sciences; HS = Health Services; PHS = Professional Health Sciences; BSS = Behavioral & Social Sciences; QS = Quantitative Sciences; BEF = Business, Economics & Finance; multicultural = non-US; racially diverse = nonwhite

Results

The flowchart created for the new PN ECHO method improved process reliability. The interview form used by the flagship Master of Health Services Administration program was revised to evaluate quantitative aptitude for the new MS-HECOR program. Both baseline and PN ECHO recruitment methods

had similar time commitments for direct contact by the recruiter (Table 2). Successful recruitment through enrollment required approximately six hours of contact time per applicant, including email, phone calls, and face-to-face meetings or tours. Unsuccessful inquiries required approximately one hour each. Overall contact time for program recruitment required approximately three to four hours per week. Non-contact recruitment time took an additional four to five hours per week; this included development of recruiting materials, LinkedIn™ profile, press release and interview materials, coaching students for interviews, interviews, photographs, learning Slate™ software, and meetings with university support services.

Novel PN ECHO recruitment strategies for MS-HECOR outlined in the methods resulted in 13 students admitted to the on-ground program. Six had professional network ties to the director, and ten were minority students. Of the 13 applicants who met admission criteria, two deferred admittance (one due to visa restrictions), one declined for financial limitations, two accepted alternative health-related programs, and nine completed registration and were fully enrolled. Women accounted for five of seven admitted students in Cohort 1, and seven of thirteen students admitted to Cohort 2.

Compared to Cohort 1 recruitment methods of process, PN ECHO method increased the percent of multicultural and racially diverse students to 32% and 46%, respectively (Tables 3a and 3b). All students in both cohorts were retained.

Discussion

Health analytics is a high-growth field

Health data analytics and "big data" management grew as a result of the 2009 American Reinvestment and Recovery Act, launching new knowledge-based health data analysis and improvement opportunities for the health services workforce. The Health Information Technology for Economic and Clinical Health (HITECH) Act extended the need for "meaningful use" of electronic health data and improvement of health quality and healthcare value. Health economic and clinical outcomes research is the branch of public health that compares the effectiveness and cost of health treatments, care, and management.

Based on our survey, team-based process and value improvement, and health outcomes research educational programs are needed to serve population health and healthcare management during the next 10 years. Program graduates benefit from improved potential for leadership in the executive suite. Further, this new MS-HECOR program, established August 2015, was the fifth MS-HECOR graduate program in the US. The first cohort will complete their degrees in August 2017.

Healthcare executives and students identified the need for novel programs to meet health data management and evidence-based outcomes research needs to improve care and value. We teach applied population health to support community well-being through partnerships and service to diverse and underserved populations. By improving processes and outcomes, we create a space where patients benefit, physicians and nurses want to practice, and healthy communities thrive. By doing this efficiently, we can care for and serve everyone. Service, ethics and justice, by and for our students, are embedded in all aspects of the new MS-HECOR program. This program benefits from building on a leadership tradition begun in 1958 with the inception of the graduate HSA program and continued in 2011 by the undergraduate HSA program.

MS-HECOR is a 40-credit hour professional program offering students a foundation in health economics and health services research. The program is designed to train students to conduct clinical and economic evaluations that inform healthcare decisions. Students learn to conduct research that generates evidence on the effectiveness, benefits, and harms of different treatment options including, but not limited to, drugs, medical devices, tests, surgeries, or methods of delivering healthcare. Study results and conclusions are used by medical professionals, payers, self-insuring employers, and government agencies to make better informed healthcare decisions and thereby improve patient care.

PN ECHO method is reliable, affordable and innovative

An affordable and reliable recruiting method was needed for this new resource-limited program to prove itself. The PN ECHO method was created to attract applicants for graduate study in health analytics. A professional network (LinkedIn™) was utilized to target diverse and multi-cultural applicants in position-likely demographic groups to connect and "echo" back many similar contacts appropriate for graduate education in health analytics, while excluding general contacts or those likely to be in senior-level positions. This strategy was based on general knowledge of virtual open networks and sensitivity/specificity analyses. In this framework, what you do not do is as important as what you do. In this case, you do not connect with anyone who serves your own personal career interests, thus increasing the "pull" for potential early-mid career graduate students. By contrast, a traditional recruitment strategy "pushes" information out to target groups, virtually or face-to-face, with concomitant expenses.

When the "pull" criteria are sufficiently broad, crossing boundaries, diversity happens on its own. When the interview process is by phone, many items of pre-judgment are not seen. The interview and documentation processes are reproducible, and are a more accurate predictor of motivation and success. Further, the PN ECHO method is sensitive, repurposing a large and sensitive open network of first-, second-, or third-degree connections who may be interested in a high-growth field. This method is also specific. It is predicated upon the subject matter expertise of the primary connection's (PC) first-degree connections. As such, the PC does not link to anyone who does not fit the profile. This results in greater "pull" to the target population. Initially, the software does the work of supplying appropriate candidates for the PC to choose as connections. Later, interested persons request connection with the PC. Connections have prescreened, based on the PC's profile. Ultimately, PN ECHO method recruitment affordably supports program growth and selectivity.

Next steps are needed

There were exceptional multicultural and minority applicants accepted who we failed to fully enroll in our program. Issues were related to the new program start-up team and support structures, lack of scholarships, and lack of financial aid. At times, prospective students' lack of familiarity with full resources available to support graduate study and work-study, economic hardship, and, importantly, immigration and visa application support became insurmountable. We must address economic insufficiency via scholarship and financial aid for well-qualified candidates.

The PN ECHO method recruitment can be part of new program start-up team workflow, with planned team development, process improvement training, and iterative improvement of the method using standard process improvement methodologies, (e.g., the Plan-Do-Study-Act cycle). Testing reliability and validity of our proposed recruitment process, application, assessment and interview methods should be undertaken. Cost comparisons of PN ECHO method to existing recruitment methods with concomitant travel, printed recruitment materials, giveaways, incidentals, recruiter salary, and fringe benefits may be undertaken.

High growth fields offer unique opportunities for diverse and multicultural students

To sustain gains in diverse and multicultural health industry executives, our efforts focused on high-growth programs with high-yield potential for health system-wide impact. Long-term health management cohort studies are needed to test hypotheses that a diverse student body increases minority leadership

in the executive suite and improves cultural competency in the workplace. Outcomes research is needed to design and test the hypothesis that population health outcomes are improved by leaders and providers that reflect US demographics. Teaching and learning studies need to be designed to test educational strategies that meet the needs of a diverse student body to learn complex analytic, management, quality, and value improvement concepts. In future, we will connect with MS-HECOR alumni who are in mid-senior level management positions to determine if the network of diverse alumni improves job prospects for graduates.

The PN ECHO Method is superior.

We have demonstrated that, compared to Cohort 1, the novel PN ECHO method increased the percent of multicultural and racially diverse students to 32% and 46%, respectively (Tables 3a and 3b). Student persistence, or retention, is 100% in the first two cohorts. Health data analytics education is the gateway to novel population and healthcare management strategies and value assessment, as well as the potential for diverse and multicultural leaders to "lift as they climb."

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