

TENNAIR

Conference 2016

**The Role of Institutional Research in
Higher Education Leadership**

**August 8 - 10
Park Vista Hotel
Gatlinburg, Tennessee**

Monday, August 8

Conference Registration

8:00 a.m. - 4:00 p.m.

Pre-Conference Workshops

9:30 a.m. - 12:00 p.m.

Non-Parametric Statistical Techniques

In many cases, the job of institutional research involves working with datasets that are relatively small or with data—grades, survey results, rankings, etc.— that does not come from a bell-curve/normal distribution. In these instances the application of the standard techniques focused on in most stats courses can yield misleading results.

This workshop is intended to be an introduction to a few statistical tests that can be useful in analyzing non-normal data. It may also be beneficial to those seeking to review certain analytical methods. Topics covered will include Spearman's rank correlation, chi-square tests, and the Wilcoxon rank sum test.

During the workshop, attendees will use their laptops to practice applying the various techniques in Excel. Anyone with a basic background in Excel should be able to participate. Knowledge of a specific statistical software package such as SAS or SPSS is not required.

1:00 - 3:50 p.m.

SAS Visual Analytics

This hands-on workshop using SAS Visual Analytics will show attendees how to explore relevant data quickly and easily. You can look at large amounts of data, uncover hidden opportunities, identify key relationships, and make more precise decisions faster than ever before. Self-service, ad hoc visual data discovery, and exploration put lightning-fast insights within everyone's reach. Whether you're an institutional researcher with limited technical skills, a statistician, or a data scientist, powerful analytics are at your fingertips. Absolutely no coding required. Sophisticated analytics, including decision trees, on-the-fly forecasting, and scenario analysis, have been

seamlessly integrated with ease-of-use features such as auto charting, "what does it mean" pop-ups, and drag-and-drop capabilities. Anyone can understand and benefit from analyzing complex data with SAS Visual Analytics. Participants are to bring their own laptops for use in this hands-on workshop. This workshop may be useful to all TENNAIR members, but may be particularly relevant considering the TBR has contracted SAS to develop its Common Data Repository and SAS Visual Analytics will be the primary reporting tool for the CDR. The workshop is sponsored by SAS Institute, Inc.

Non-Parametric Statistical Techniques *(repeat of 9:30 session)*

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4:00 - 5:00 p.m.

Newcomers

This session is intended for those who are new to the field of institutional research/effectiveness. This session will focus on the main functions and responsibilities of IR/IE such as program review, accreditation, reporting, and quality assurance. We will discuss the various stakeholders we serve and how IR/IE can support the work of each institution by providing data for decision making. Attendees will be able to ask questions and share experiences. A networking opportunity will follow the session, as the group is encouraged to continue the conversation over dinner.

Tuesday, August 9

Conference Registration

8:00 a.m. - 4:00 p.m.

Segmental Meetings

9:00 - 11:30 a.m.

Tennessee Board of Regents (TBR) Institutions

University of Tennessee (UT) Institutions

Tennessee Independent Colleges and Universities Association (TICUA) Institutions

Past Presidents' Lunch

12:00 - 1:00 p.m.

Opening Session

1:15 - 1:30 p.m.

Keynote Address

1:30 - 2:30 p.m.

Dr. Belle Wheelan, President, Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)



Dr. Wheelan currently serves as President of the Southern Association of Colleges and Schools Commission on Colleges and is the first African American and the first woman to serve in this capacity. Her career spans over 40 years and includes the roles of faculty member, chief student services

officer, campus provost, college president and Secretary of Education. In several of those roles she was the first African American and/or woman to serve in those capacities.

Dr. Wheelan received her Bachelor's degree from Trinity University in Texas (1972) with a double major in Psychology and Sociology; her Master's from Louisiana State University (1974) in Developmental Educational Psychology; and her Doctorate from the University of Texas at Austin (1984) in Educational Administration with a special concentration in community college leadership.

She has received numerous awards and recognition including six honorary degrees; the Distinguished Graduate Award from Trinity University (2002), and from the College of Education at the University of Texas at Austin (1992); Washingtonian Magazine's 100 Most Powerful Women in Washington, DC (2001); the AAUW Woman of Distinction Award (2002); the Suanne Davis Roueche National Institute for Staff and Organizational Development's Distinguished Lecturer Award (2007); the John E. Roueche National Institute for Staff and Organizational Development's International Leadership Award (2010); and the AACC Leadership Award (2011); the John Hope Franklin Award from *Diverse Issues in Higher Education* for outstanding leadership in higher education; and the Educational Testing Service (ETS) Terry O'Banion Prize in Education from the League for Innovation in Community Colleges.

She holds and has held membership in numerous local, state and national organizations including Rotary International; Alpha Kappa Alpha Sorority, Inc.; the American College Testing, Inc., Board of Directors; American Association of Community Colleges, Board of Directors; the Lumina Foundation for Education, Board of Directors; the President's Round Table of the National Council on Black American Affairs; the National Black College Alumni Hall of Fame, Board of Directors; Excelencia in Education, Board of Directors; National Society of Collegiate Scholars, Community College Honorary Board; Next Generation Learning Challenges, Advisory Panel; Project GOALS (Gaining Online Accessible Learning Through Self-Study); and the National Student Clearinghouse, Board of Directors.

Dr. Wheelan attributes her success to hard work, endurance, tenacity, and being in the right place at the right time. She recognizes that prayer and support from family and friends make anything possible.

Concurrent Sessions

2:45 - 3:30 p.m.

Analytical Curriculum Modeling; Moving Beyond Academic Mapping

By G. L. Donhardt

Analytical Curriculum Modeling determines factors associated with student achievement in course offerings to help admissions counselors and advisors assess student aptitude, intervene when students are having difficulty in critical courses, and if necessary redirect students to majors where they can find success.

Analytical Curriculum Modeling predicts success in course sequences by providing evidence of the relationship between preadmissions metrics, course grades, and degree completion within programs. Preadmission scores such as ACT, high-school GPA, and ALEKS scores predict course successes in the first term. Grades in early course offerings are used to predict success in later offerings and in degree completion. Linear models help determine pivotal courses as those directly influencing other offerings in the sequence. The resultant equations inform evaluations of student potential.

Three undergraduate programs at the University of Memphis are examined in this précis. The College of Nursing has a high applicant demand and limited openings for majors. The concern is for pre-nursing majors who never gain entrance into the program. The College of Engineering, with high attrition rates, is interested in examining course obstacles to degree completion. Both sequential multiple regression and path analysis are used to explain success. The Architecture program is marked with relatively large incoming classes yet few graduates. Study results reveal that grades in a pivotal first-term course in Architecture predicts success in six other courses in the sequence yet has no predictors of its own success. A survey instrument is being developed to help predict success in this critical course.

Carefully crafted communities: Designing and leading a Faculty Learning Community (FLC) for evaluation and assessment

By Sondra LoRe, Evaluation Associate, National Institute for Mathematical and Biological Synthesis (NIMBioS), The University of Tennessee, Knoxville

Faculty Learning Communities (FLCs) are playing an increasing role in academic institutions as a way for faculty to collaborate and improve instructional strategies to increase student engagement and course outcomes (Cox, 2004). But how does one begin to design, implement, and lead a FLC in higher education? How can a sense of urgency be created to encourage participation from faculty members and to improve pedagogies and instructional techniques? In what ways can FLCs provide meaningful data for assessment and evaluation? Attendees to this session will leave with practical examples of successful mixed-method approaches to program evaluation using a FLC approach.

The design of this particular FLC began with a needs assessment of current students, recent graduates, and industry executives regarding the technical and human relations skills of program graduates through the use of an online survey. Then, a FLC was formed with faculty department members to address two main areas of need: the mapping of curriculum to reduce gaps in the design and implementation of skills and to improve instructional techniques in the classroom. In this way the FLC took on a Utilization Focused Evaluation (UF-E) approach (Patton, 2008), with the evaluator taking on the role of co-designer with the faculty members. Although this session shares reflections on the implementation of a FLC for a college engineering department, the applications can easily be translated to any higher academic setting. Attendees to this session will engage with several FLC design models which can be quickly modified to meet needs.

Business Intelligence Panel Discussion

By Jay Eckles, Director of Business Intelligence, University of Tennessee, and Ian Reynolds, Project Manager, Tennessee Board of Regents

The University of Tennessee System and Tennessee Board of Regents have both recently embarked on developing data warehouses and business intelligence environments. Each of these projects intend to create comprehensive data repositories, visualization, and business intelligence solutions aimed to significantly improve the accuracy, availability, and analytical reporting capabilities of data across each respective system. This information session will discuss the development processes, challenges, best practices learned, and future directions envisioned for each project.

Visualization Best Practices & Live Demo

By Mark Evans, Commercial Sales Manager, Tableau

Tableau is all about making data analytics fast, easy, beautiful, and most importantly—useful. Helping people gain insight into their data to solve unexpected problems is what drives us. At this session we will provide an introduction to the power of visual analytics and how the brain processes information to exploit our visual perception abilities in order to amplify cognition.

This session is for you if you are new to Tableau and answer 'yes' to any of the following questions:

Who should attend?

During this event we'll introduce you to Tableau and answer any questions about its capabilities

- Do you work with data?
- Do you struggle with frustratingly slow or insufficient reports?
- Do you have inadequate business intelligence tools for your business users?
- Are you struggling to show your data visually in a way people will understand?

There will be a live demonstration of Tableau building out a dashboard, connecting to a relevant data set of sample enrollment data

to be disproportionately high-achieving students, I use coarsened exact matching to construct a control group that is as similar to a group of recent SA participants as possible across a number of dimensions. I then show how regression and simulation can be used to present easy to interpret and substantively meaningful quantities of interest using a matched sample. Estimates of the impact of SA are presented as change in the predicted probability that a typical SA participant graduates by a particular year. SA participation is associated with a higher likelihood of graduating at or before each of the standard benchmarks and may help close the graduation gap between first-gen and non-first gen students. While matching is not a panacea for all self-selection problems, it can improve analyses by creating balanced groups with respect to observed characteristics, and it is easily implemented in common statistical packages. I demonstrate coarsened exact matching's advantages over more widely used matching techniques and discuss the justifications and limitations of matching for analyzing the impact of program participation on student outcomes. .

Using Qualitative Data to Improve Academic Intervention Programs

By Jessica Osborne, Assistant Director, Student Success Center, University of Tennessee, Knoxville

Break

3:30 - 4:00 p.m.

Sponsored by:



Concurrent Sessions

4:00 - 4:45 p.m.

Estimating the Effect of Study Abroad on College Completion Using Coarsened Exact Matching

By Ryan Shirah, Research Associate, Office of Institutional Research and Assessment, University of Tennessee, Knoxville

Are students who study abroad (SA) more or less likely to graduate on time? Since SA participants tend

Within the past year, the Student Success Center (SSC) at the University of Tennessee, Knoxville, has developed, implemented, and utilized qualitative data practices to improve three academic intervention programs: academic coaching, supplemental instruction, and tutoring. This presentation will detail the qualitative data collection process, data analysis, and an explanation of how the results are currently being used or how they will be used in the future. The majority of the presentation will focus on a recent needs assessment of the academic coaches conducted in the spring of 2016, with some discussion of smaller qualitative data initiatives. Discussion of the impact of these initiatives will include preliminary results from changes based on the data as well as future plans and next steps. Lastly, the presentation will conclude with a discussion of how qualitative data can be used to improve academic intervention programs for undergraduate students.

Managing Multiple University Assessments Online: Lessons Learned

By Carol Smith Walter, Belmont University

Attendees will review strategies for collecting assessment data in a way that best facilitates reporting and decision-making.

When a university starts the assessment journey online, it is difficult to see over the mountain of the initial data collection. On the other side, however, the data will need to be displayed in a digestible form for decision-making at the university level. Was it collected in a way that will allow for this kind of display? This presentation includes a map to follow from data collection to final reporting.

Using Simulation Modeling Approach to Predict Medical Student Licensure Examination Performances

By Chau-Kuang Chen, Professor and Director of Institutional Research, Meharry Medical College

The prediction models for the United States Medical Licensure Examination (USMLE) Steps 1 and 2 performances were constructed by the Monte Carlo simulation modeling approach. The major benefits of using the simulation method were to yield the range estimations of the Steps 1 and 2 scores; and to identify the most crucial predictors associated with the Steps 1 and 2 performances. The application of simulation models was justifiable because the important predictors--the Medical College Admission Test (MCAT) scores and National Board of Medical Examiner (NBME) Subject Board scores were identified. These research findings were consistent with the literature reviews. Also, sensitivity analysis (a/k/a what-if analysis) in the simulation models was used to predict the sensitivity ratios (magnitudes of USMLE Steps 1 and 2 affected by changes in NBME Subject Board scores and MCAT scores, respectively). As a result, the College could screen the qualified student applicants for interviews and document the effectiveness of its basic and clinical science education programs.

Evening Reception

5:30 - 6:30 p.m.

Wednesday, August 10

Conference Registration

8:00 - 9:00 a.m.

Concurrent Sessions

9:00 - 9:45 a.m.

Adult Learners at PSCC: Who are they? What do they do?

By Hope Denny, Instructor, Early Childhood Education; John Heuer, Coordinator, Data Analytics; Marisol Benitez-Ramirez, Technician, Data Analytics; and Nancy Ramsey, Executive Director, Institutional Effectiveness, Assessment and Planning, Pellissippi State Community College

Pellissippi State Community College conducted a study of adult learners and their behavior during Fall 2015 and Spring 2016. Volunteers from faculty and staff, along with the IR professionals, identified research questions, collected and reviewed data, and presented the findings to the College. Data sources used for the project included student information from Banner, Community College Survey of Student Engagement results, and the CAEL Adult Learner Inventory results. This presentation will provide information on the data analysis, findings and the process for involving the entire college in data analysis and data-informed decision making. The idea of involving faculty and staff in the entire process has been rewarding and beneficial. PSCC will use this methodology next year to study a different topic identified by the College administration.

When IR and Administration Collide, Collaborative Solutions Arise

By Cindy Williamson, Director of Assessment; and Kristen Noblit, Senior Research Associate; The University of Tennessee at Chattanooga

Leadership in higher education is entrusted with certain responsibilities. To fulfill their responsibilities, those in leadership positions must have data to support their decisions (Northouse, 2013). In the past, UTC's Office of Planning, Evaluation and Institu-

tional Research (OPEIR) was typically relegated to the back office, generating data for compliance and other required reports. Today, OPEIR is involved in multiple areas and present across campus in many different capacities.

Institutional Research (IR) and those in administrative leadership positions may not always see eye to eye. At UTC, the current administration understands the importance of data-driven decisions, resulting in a new era of flourishing collaboration. Banner Support Services and IR worked together to produce dashboards to support both reporting and daily advising needs. Regular training sessions have informed faculty and staff of where to find the data and how to get additional support. These collaborations have also positively impacted the assessment processes across campus. From establishing outcomes, to assessing those outcomes and using assessment results to improve program effectiveness, the way that leadership and IR support each other has bolstered departmental collaboration.

The examples above provide a context for understanding the complex relationship between leadership and IR. As Burke (2014) and Mumby (2013) remind us, communication is crucial to the success and effectiveness of any organization, and the open communication between UTC's leadership and IR is essential. It is critical for IR to support the leadership of an institution, and it is just as important for leadership to support IR.

Data Governance-Strategies that Work

By Patricia White, Director, Business Intelligence and Data Management; and Mary Lucus, Director, Institutional Research, Belmont University

Every Institutional Research office faces challenges when compiling data from the many data sources on campus. Some of the common problems faced include lack of access to data, lack of documentation on proper use and meaning of data, and missing or dirty data. Belmont University has implemented a university-wide system of data governance, led by the Office of Assessment and Institutional Research to ensure communication and cooperation among data stewards, enhance data integrity and standardize reporting. This presentation highlights the strategies that have been successful for us and a few of the challenges we still face in the process.

Keynote Panel

10:00 - 11:00 a.m.



Dr. Glenn James, moderator of the keynote panel, is Director of Institutional Research at Tennessee Tech University. Dr. James has developed his knowledge of higher education through his work in institutions in North Carolina, Virginia, Texas, and Tennessee.

He has been actively involved in institutional research and planning at the state, regional, and national levels. He currently is serving as President of the Association for Institutional Research (AIR). He also is a Past President and Distinguished Member of the Southern Association for Institutional Research (SAIR), and he is a Past President of the Texas Association for Institutional Research (TAIR) and the Tennessee Association for Institutional Research (TENNAIR).

Dr. Katie High is vice president for academic affairs and student success for the University of Tennessee. In this position she oversees academic and student affairs for the UT System. In this role, she coordinates mission statements, academic strategic plans, establishment and revision of academic organizations and the admission, progression and retention standards. Prior to this position, she was chief of staff to the UT System president for two years. Before being named chief of staff, High served in the Office of Academic Affairs and Student Success as associate vice president from 2005 to 2007 and as interim vice president from January 2008 to August 2008.



High was vice chancellor for student affairs at the University of Tennessee at Martin from 2001 to 2005.

Dr. John M. Braxton is Professor of Education in the department of Leadership, Policy and Organizations

in the Peabody College of Education at Vanderbilt



University. His research interests center on the college student experience and the sociology of the academic profession. A prolific researcher and writer, Braxton has been recognized as one of the top ten most cited individuals in higher education research.

Professor Braxton serves as a member of the Editorial Board of *The Journal of College Student Retention* and served as the 9th Editor of the *Journal of College Student Development* for seven years from 2008 to 2015. He is also a past President of the Association for the Study of Higher Education. Professor Braxton moved into academia after several years working in institutional research.

Dr. Brian Noland became the ninth president of East Tennessee State University in January 2012 after serving for six years as Chancellor of the West Virginia Higher Education System. Prior to that, he served as the associate executive director for the Tennessee Higher Education Commission where his job duties included the development and implementation of the Tennessee Education Lottery Scholarship program.



In the past, he has also served as an adjunct faculty member at Vanderbilt University, Nashville State Community College and Tennessee State University.

Concurrent Sessions

11:15 a.m. - 12:00 p.m.

Extra credits and degree efficiency: Time lost and costs incurred by Tennessee graduates on their path to a postsecondary degree

By Alexander Gorbunov, Associate Director of Research, Tennessee Higher Education Commission

Tennessee is aiming to significantly raise its educational attainment in the next decade. Achieving the goal of 55 percent of working-age adults with postsecondary credentials will require identifying and rectifying inefficiencies in the educational pipeline. One such salient problem area is student accumulation of extraneous (non-productive) credit hours, which have a cost both in terms of longer time to graduation and expenses incurred by students and institutions. The need to address these degree production costs necessitates a thorough analysis of trends of extra credit accumulation by Tennessee college graduates.

This study answers the following question: What is the amount and cost of extraneous credits accumulated on the path to a degree? It examines 6 cohorts (2010 through 2015) of associate and bachelor's degree graduates of Tennessee public institutions and estimates the cost of extra credits in terms of time (semesters lost) and financial implications (dollars lost). Extraneous credits are defined as the difference

between the cumulative credits earned by graduation (less credits imported from dual enrollment or prior institutions) and programmatic requirements for major at graduation. The graduates are tracked back to their original enrollment in Tennessee public sector. Such an approach allows for tracing credit accumulation over time and provides for descriptive analysis by student and institutional characteristics. The data come from the Student Information System operated by the Tennessee Higher Education Commission. The results are presented at the state, system, and institutional levels, as well as by major and student characteristics, for each cohort.

Organizational Assessment to Improve College Student Persistence

By John M. Braxton, Professor, Higher Education Leadership and Policy Program, Peabody College of Vanderbilt University

DRAFT

The purpose of this session is to acquaint institutional research officers with organizational factors that indirectly influence first year student persistence in both commuter and residential colleges and universities as found by Braxton et al in Reworking College Student Retention (2014). These organizational factors include student perceptions of institutional integrity, commitment of the institution to student welfare, and prejudice and racial discrimination. Because of the indirect role these organizational factors play in first year college student persistence, institutional research officers are urged to administer survey instruments to their students that measure their students perceptions of these three factors.

In this session, these three factors will be described and participants will be given the bank of survey items needed to conduct such organizational assessments.

Making Forecasts: The Time-Series Decomposition Method

By Rion McDonald, Director of IR, Columbia State Community College

Using enrollment data, the presenter will demonstrate how to produce time-series forecasts by breaking historical data into trend, seasonal, and cyclical components.

Argos and the Data Cookbook

By Patricia White, Director, Business Intelligence and Data Management, Belmont University

With over 200 dashboards and reports in the student folder alone, how can you find what you need? Duplicated reports, duplicated data and just plain bad data; How can you trust what you are seeing? Follow our three year journey to clean up and standardize report offerings in Argos, our standard reporting tool, and to integrate Argos with terminology and report documentation in the university data dictionary, the Data Cookbook.

Business Meeting and Luncheon
12:00 - 1:00 p.m.

Executive Committee Meeting

1:00 - 2:00 p.m.

Thank you for attending the 2016 TENNAIR Conference! Please don't forget to complete the conference survey, and we look forward to seeing you again at next year's conference.

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Special Thanks to our 2016 Keynote Speaker and Panelists:

Dr. Belle Wheelan
Dr. Glenn James
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