1ST WTRC RESEARCH POSTER PRESENTION SYMPOSIUM 2019 EXTENDED ABSTRACT

Sponsored by Wake Tech Research Colloquium Association (WTRC)

APRIL 17, 2019

WAKE TECHNICAL COMMUNITY COLLEGE
9101 Fayetteville Road, Raleigh, North Carolina 27603

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Message from the Wake Tech Research Colloquium Sponsor: SVP Bryan Ryan

As Dr. Kai Wang and I wrote in a paper we presented at the Society for Research on Educational Effectiveness Spring 2018 Conference in Washington, DC, "[One] challenge for community college researchers stems from the fact that the capacity for, commitment to, and resources supporting research at these institutions has developed to meet federal, state, and accreditation compliance, and more recently performance reporting. Morest and Jenkins (2007, p. 8) point out in their study Institutional Research and the Culture of Evidence at Community Colleges that "while … examples illustrate that individuals and groups within colleges occasionally utilize IR [institutional research] to carry out small studies about student progress, the majority of IR work relates to compliance reporting and enrollment monitoring. Applied research that is either analytical or evaluative is less common and is considered to be a lower priority." Since this 2007 study, colleges have seen an increase in the demand for studies on student progress as federal agencies and regional accreditors have called for a greater focus on student learning outcomes. Even so, outcome assessment has not displaced compliance reporting from its dominance in research; it has just added more strain on already resource-strapped IR staffs. Some community colleges can call on faculty to contribute to student learning outcome assessment; however, as noted above, given that community college instructors are expected to devote most of their effort to teaching, there is limited time and support for faculty-directed research."

Our goal for the Wake Tech Research Colloquium Association is to change this dynamic. Specifically, we hope to "(1) develop the capacity for increasingly sophisticated research through engagement with peers in national reform initiatives; (2) invite talent from all areas of the college to participate in college-wide change projects, and (3) find an experienced collaborative partner that fills the gaps in institutional experience and challenges the college to reach stretch goals."

The projects in this extended abstract represent the interest and expertise in research already in place at Wake Tech. It is my hope that through this colloquium, the college can continue to develop this capacity, to inspire more of our colleagues to bring their talents to studying how well we are meeting our mission, and to develop and learn from partnerships with other researchers—in short, to lead the way in community college research.

My thanks to all who have contributed to this symposium. I trust that the participants in the poster sessions will appreciate, as I have, all there is to learn from our Wake Tech researchers.

Bryan Ryan

Senior Vice President of Effectiveness and Innovation

Message from the Symposium Organizer: Dr. Pooneh Lari

Dear Colleagues,

On behalf of Wake Tech Research Colloquium Association (WTRC), it is my honor and pleasure to welcome all presenters and participants to the 1st WTRC Research Poster Presentation Symposium, April 17, 2019. This is the first, I hope, of many gatherings as such, to display and showcase the great and exciting research and collaborations happening throughout our college.

I want to thank all the colleagues who have worked tirelessly to make this event possible. It wouldn't have been possible without you!

Above all, I want to thank you, the presenters, for enriching this event with your presence. I hope you will enjoy the symposium, make time to converse with old friends, make new friends, network and gain new ideas, and most importantly, have a good time!

I sincerely hope that this symposium will create a space for deliberation and discussion about all the different facets of exciting research topics and projects and encourage colleagues around Wake Tech to join this dynamic conversation.

I wish you great success!

Sincerely,

Pooneh Lari, Ed.D.
WTRC President

Understanding Muslim Assimilation: An Empirical Assessment of First and Second Generation Muslims Using Segmented Assimilation Theory

Asfari, A. and Askar, A.
Criminal Justice
Business and Public Services Technologies

In the post 9/11 era, Muslim Americans face increasing challenges and calls to assimilate into their host culture—the United States. Indeed, the events of 9/11, as well as subsequent attacks in Europe have heightened public fears and legitimized the idea that Muslims don't belong in the West. In many Western nations, policies of exclusion were used to differentiate between the dominant culture and that of Muslims. For example, the United States witnessed the introduction of nearly 72 pieces of legislation popularly called "anti-Sharia" bills, aimed at curbing Islamic influence in the country (Asfari and Hirschbein, 2018). With increased scrutiny and efforts to marginalize Muslim immigrants, this study seeks to contribute to the small but growing body of literature on the integration of Muslims into their host country, specifically, we evaluate the integration of first- and second-generation Muslim Americans. Findings suggest that Muslim assimilation follows similar trajectories as those of other immigrant populations (i.e., Hispanic, Sikh, Asians).

New Methods for Determining the Bachelor's Completion Rates of Our Students

Bartek, C., Sumithran, S., Wang, K., and Workineh, Y.
College Initiatives and Assessment
Effectiveness and Innovation

The credential completion rates for students, and the extent to which they transfer and complete bachelor's degrees at four-year institutions, are important measures of educational effectiveness at both two-year and four-year colleges (Jenkins and Fink, 2016). Replicable methods for analyzing these measures are key to identifying four-year institutions where our students are most and least successful and for developing strategy to improve the outcomes. Yet few representative benchmarks and measures have been developed and tested for this purpose. The Community College Research Center (CCRC) has developed new methods for measuring the extent to which community college students complete credentials, transfer-out and attain bachelor's degrees at four-year transfer institutions (Fink and Jenkins, 2017). During this session, you will learn how Wake Tech tested, applied and customized these methods using National Student Clearinghouse data to determine the bachelor's completion rates of our transfer students and to identify our top and lowest performing transfer partners. This information is being used to develop strategy as part of our SPARK! strategic planning process.

Assessing Mentoring Culture and Aligning It with Strategic Innovation

Barton, D. and Lari, P.
Business Administration
Business and Public Services Technologies

Instructional Design and Development
eLearning Support and Instructional Design

As innovation becomes more vital to organizational sustainability, a culture that supports innovation is required. A mentoring culture defined as a workplace with two building blocks—connection of culture with mentoring and infrastructure—and eight hallmarks—alignment, accountability, communication, value and visibility, demand, multiple mentoring opportunities, education and training, and safety net (Zachary, 2005)—has the potential to meet that need. For the purposes of this research, a mentoring culture assessment instrument composed of fifty questions and a 5-point Likert scale ranging from always to don't know was administered via SurveyMonkey® to college employees, including adjuncts. Using mentoring culture, organizational culture, and innovation theories as the lens, results show that a large percent of the college's employees are not aware of the current mentoring initiatives across the college, yet the mentoring programs in place received high ratings. These results reflect that while mentoring is valued, there is not the clear alignment with strategic goals, leadership development, and infrastructure required create a mentoring culture supporting strategic innovation. A more congruent approach to mentoring would allow more employees to be involved in and benefit from mentoring. With the infrastructure set for a mentoring culture, employees would have the resources needed to achieve innovation. Mentoring culture serves as a foundation to support innovation and the sustainability of the organization.

Reflective Practice and North Carolina's Developmental Reading and English Redesign Efforts

Dees, L. and Moore, E.
Communication and Theatre
Arts, Humanities, and Social Sciences

As developmental education practitioners in the midst of North Carolina's Developmental Reading and English Redesign, we were interested in researching best practices for instructional design and application. We discovered that the principles of reflective practice pervade much of the literature on program planning and practice, so we began to question whether those principles were guiding statewide redesign efforts. We intentionally incorporated reflective practices to discover whether our experience mirrored this contemplative theory. In our research article, grounded in reflective practice theory and adult learning theory, we present an overview of our experiences incorporating reflective practice into our redesign efforts.

The Impact of Employing the Terry O'Banion Advising Model on Persistence, Success, and Satisfaction with Advising for Pre-Nursing Students at a Large North Carolina Community College

Blackwell, C.
Curriculum Support
Curriculum Education Services

The purpose of this mixed-methods research study was to determine the impact of mandatory developmental academic advising on the persistence, successful course completion, and grade point average of pre-nursing students at a large-sized urban community college within the North Carolina Community College System. With data obtained through student interviews, the study was also designed to describe the impact of the affective experiences of pre-nursing students who were advised in accordance with a developmental advising model. The t-test and chi square test were used to analyze the quantitative data. Interviews with students provided responses reflected in the themes identified in the qualitative analysis. Implications for practice and recommendations are conferred.

Urban Water Supply Vulnerability

Crouch, M.
Physical Sciences
Mathematics, Sciences, and Engineering

In the United States 68% of the population relies on surface water (streams, reservoirs) for drinking water. 36% of large cities water supplies are vulnerable to failure in the future from overuse, and this number will increase to 44% in 2040 due to population growth. Raleigh and the surrounding metropolitan areas are rapidly expanding and rely upon Falls and Jordan Lakes for drinking water. These lakes develop anoxic bottom waters during the summer stratification periods. Depth profiles show that an oxycline develops in early spring and persists until late fall in the lower portions of Falls and of Jordan Lakes above the dam. Above the oxycline, a Chla and BGA maximum develops, and below the oxycline, DOM (dissolved organic matter) concentrations increase. We have investigated this lower anoxic layer with a GOPRO anchor-cam and found bacterial mats on the floor of the lake, and “lake snow” or floating bacterial colonies in the anoxic bottom layer. We have quantified the numbers of floating colonies and found that they are absent in highly turbid shallow bottom water areas and increase in size and density in the lower portions of the reservoirs above the dam where the DOM increases. This is not a problem in Jordan Lake because drinking water is taken from the shallow middle portion of the lake but can be a problem in Falls Lake because the drinking water is taken from 15 feet in the lower portion of the lake where DOM and "lake snow" is concentrated.

First in the World COMPASS Project: Increasing Success and Retention for Students of Color

Evans, S. and Shahid-El, L.
Strategic Innovations
Effectiveness and Innovation

Wake Tech's First in the World Grant initiative, Project COMPASS, was designed to improve the retention and success rates of students in online courses. COMPASS, an acronym for "Constructing an Online Model to Promote At-Risk Student Success," is particularly interested in improving outcomes for students of color. As a part of Wake Tech's innovative intervention, Project COMPASS instructors have employed "high-tech" tools and "high-touch" course redesign strategies that enhance the student experience and increase teaching, social and cognitive presence in the online environment. Teaching presence involves the instructor's design, facilitation and climate setting of the course that lead to meaningful learning outcomes; social presence relates to a supportive learning community for students; and cognitive presence relates to collaborative activities that allow students to construct meaning from course content. This project implemented "high-tech" technologies such as easy-to-use studios for video creation, web-conferencing software for synchronous interaction, texting tools for course reminders, and video threaded discussions to increase social and cognitive presence. "High-touch" engagement elements were also included, such as intentional, proactive communication, proactive interventions to identify student issues before they arise, and intentional inclusion of people of color throughout course materials. Results of this randomized controlled, 4-year study will be presented, based on the two high-enrollment, low-success gateway courses in the project's first research phase (research for the third and final course is underway). Results indicate improvement in withdrawal rates and an increase in student success rates for all students, with greater improvements for students of color.

Wake Technical Community College Teaching and Learning Certification

Kalbaugh, L., McNary, J., Powell, C., Jones, M., Osborne, C., Harrell, L., Langton, R., Greene, T., and Blount, B.
(TALA) Teaching and Learning Academy (Committee)
Academic Success and Transition Resources

TALA is a team effort to create a comprehensive series of PD courses that would provide faculty with a baseline of knowledge in areas critical to student success, persistence and completion through faculty excellence. Our poster will provide knowledge and advertisement for this new structured training program for our traditional classes. It is our belief that better teaching = better student outcomes.

A Probable Deinosuchus Track: A First Record from the Upper Cretaceous Menefee Formation, San Juan Basin, Northern New Mexico

Giraldo, D., King, R., Smith, J., and Zanno, L.
Department of Natural Sciences, Wake Technical Community College
Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Alberta, Canada
Western Slope Paleontology, Grand Junction, CO, USA
Paleontology, North Carolina Museum of Natural Sciences
Department of Biological Sciences, North Carolina State University

The early Campanian Menefee Formation, San Juan Basin, northwestern New Mexico, preserves fossils from a poorly understood interval in Earth's history. A brief survey in 2017 recovered new remains of turtles and dinosaurs and a variety of ichnofossils including a large, well-preserved track attributed to a crocodylian. Crocodylian tracks have not yet been reported for the Menefee Formation, and few are documented in Cretaceous deposits of the Western Interior Basin. Here we describe the newly discovered track, create a 3D photogrammetric model of the track, and use measurements to estimate the body length of the trackmaker.

The crocodylian track, NM-17-05-21-K6, is represented as a natural mudstone cast subsequently overlain by a fine to medium-grained interbedded sandstone with some traces of organic/plant material. The track shape is a well-preserved manus print bearing evidence of each of the five digits, as well as, skin impressions from the bottom of the foot are preserved on the track. Body length was estimated by measuring from the tip of the snout to the tip of the tail of 12 extant species. Our regressions of manus length to body length derived from a database of extant crocodylians suggests that the track was made by a crocodylian between ~10 meters and ~18 meters in size. Currently four taxa have been identified from the Menefee Formation based on body fossils including isolated teeth, osteoderms, and other skeletal materials: Brachychampsa, Leidyosuchus, Denazinosuchus kirtlandicus, and Deinosuchus rugosus. Of these, only Deinosuchus reaches body lengths consistent with our trackmaker estimates. We therefore conclude that the track from the Menefee Formation is likely attributable to Deinosuchus, one of the largest crocodylians to have inhabited North America.

Using Applied Benchmarking to Jump START (STEM Academic Research and Training) Student's Careers

Knox, R. and Swanik, J.
Mathematics, Sciences and Engineering

The Applied Benchmarking process was used to begin an undergraduate research program in the Mathematics, Sciences and Engineering Division. The program, now in its third year, consists of 22 students, 10 faculty mentors, a steering committee, and an internship program. The criteria for internship status includes 20 hours of work throughout the semester, communication of the semester's work either in oral or written format, and a mentor's feedback on student performance. Projects are faculty-mentored and range in topics from using drunk fruit flies to investigate alcoholism to exploring how campus changes effect the ecosystem to 3D printing and exploring algae to make biofuels to discovering antibiotic-resistance bacteria in the environment. Projects are not linked to a course or curriculum but showcase the interdisciplinary nature of STEM fields and allow students to gain understanding of what it means to be a STEM professional. Students may stay in the program (if qualifications are satisfied) for the duration of their time at Wake Tech and may choose to remain with the same project during their tenure with the program or switch topics to have more of an exploratory path. The START steering committee is composed of faculty members from throughout the division and administrators from other areas of the college. The steering committee has decided upon the mission statement, program learning outcomes, and requirements for program admission and internship status. Other Applied Benchmarking grants have expanded the program and include funding supplies for individual projects and sending students to local conferences.

Student Satisfaction with Online Communication

Maness, D. and Barton, D.
English
Arts, Humanities, and Social Sciences

Business Administration
Business and Public Services Technologies

The purpose of the research was to investigate the relationship between student ratings of satisfaction with faculty communication in online classes and faculty presence. The participants included ninety-eight students in six online classes taught by two professors: one teaching Business Administration and the other one teaching English. This study used the community of inquiry (COL) theory, the teaching presence survey (TPS) composed of 13-items from the COL survey instrument, and archival data from the college's learning management system (LMS) to examine student satisfaction with online teaching presence in four asynchronous online courses at a southern community college. The research methodology utilized quantitative survey method with archival data to collect student responses to the TPS and faculty communication patterns archived in the college's LMS. Data was analyzed by comparing the students' ratings on the TPS with the online presence of the faculty. The findings showed 92.24% satisfaction with design and organization, 79.57% satisfaction with facilitation, and 84.51% satisfaction with direct instruction.

C4All

Markovich, H., Smith, J., Tsai, B., Schlieper, A., Romano, J., and Olds, K.
Mathematics and Physics
Mathematics, Sciences and Engineering

Experience an exciting initiative to build a foundation for a campus-wide culture of persistence and student success by examining evidence-based, intentional practices, in particular for students at risk of withdrawal and failure. Our group is researching the educational needs of students who may have grown up under conditions of scarcity, such as food and housing insecurity, who are members of a non-dominant group, or have experienced discrimination and exclusion. The research phase of our project will develop a Scholarship of Teaching and Learning (SoTL) group where we will begin by reading and discussing Bandwidth Recovery: Helping Students Reclaim Cognitive Resources Lost to Poverty, Racism, and Social Marginalization by Cia Verschelden. The book presents research about how these circumstances impede academic success, and lead to chronic stress that erodes cognitive resources available for learning, which she refers to as “bandwidth”. We will propose strategies to address the issues raised in the book by developing and sharing a list of intentional practices to better serve the educational needs of our marginalized students. Participants will have the autonomy to choose their path as an agent of change and be a leader of the future of Wake Tech. Beginning with small changes to our current practices we hope to create a grassroots movement that will gain momentum and change the culture from one of regretful acceptance of withdrawal and failure to the lofty goal of a future with 100% completion of our courses.

Evaluating Student Applied Benchmarking

Moore, E. and Barton, D.
Communication and Theatre
Arts, Humanities, and Social Sciences

Business Administration
Business and Public Services Technologies

At Wake Technical Community College in Raleigh, N.C., the Student Applied Benchmarking (SAB) program is striving to help students develop problem-solving skills with the support of staff and faculty across the college. Grounded in social learning theory, the SAB program requires students to use the college's Applied Benchmarking process to develop a proposal for change. Our program evaluation research looked at the results of a survey administered to program participants at the end of the program in May of 2018. The participants included both program sponsors and students. Sponsors felt that the Applied Benchmarking process helped students prepare for a future career at a rate of 83.3%, while 87.5% of students agreed that it did prepare them for a future career. Both sponsors and student participants (100%) felt this program made students feel more connected to the college and the curriculum. All students who participated in this program said they would use the Applied Benchmarking method to solve problems in the future and 50% agreed that their participation improved their grades. Our poster presentation will present more survey results, including qualitative data collected, and will propose next steps in the process of research and program evaluation for the Student Applied Benchmarking program.

Building Communities of Practice through Faculty Mentorship

Lari, P. and Barton, D.
Instructional Design and Development
eLearning Support and Instructional Design

Business Administration
Business and Public Services Technologies

Building an effective mentoring program for community college faculty is a complex and multifaceted task. There are multiple layers of stakeholders and levels of involvement, which at times makes navigating the mentoring relationships challenging and complicates the decision of what types of information to provide to the faculty as part of their mentorship. One strategy for developing a successful mentoring program is to create a community of practice among faulty members to provide support, create dialogue, exchange best practices, and hopefully, create a process of collective learning in a community of practice, where faculty are open to receiving guidance and willing to engage in the process as part of the mentoring program. This study will inform the practices and processes of a newly formed faculty mentoring program at Wake Technical Community College and aims to add to the body of literature of community college faculty mentoring and faculty development.

Impact of an Educational Intervention on Community Opioid Overdose Prevention in Nursing Education

Sheppa, L.
Nursing
Health Sciences

There is an imminent need to provide support for public health awareness and education on community opioid overdose prevention. Nurses play a critical role in providing care to overdose victims and education on opioid overdose prevention to victims and other members of the community. A thorough review of the literature yielded a paucity of information available to guide educators on how to prepare nurses and students to meet the needs of the current worldwide opioid crisis. This poster presentation will provide the research results from a doctoral scholarly project aimed at preparing nursing students with the requisite knowledge, skills, and attitudes to manage opioid overdose within community settings and provide education on opioid overdose prevention to members of the community to support future nursing education and practice.

An EPIC Journey

Smith, J., Sumithran, S., Popp, J., Bartek, C., and Madsen, R.
College Initiatives and Assessment
Effectiveness and Innovation

In 2014, Wake Technical Community College launched EPIC (eLearning Preparedness Initiative across the College), a Quality Enhancement Plan (QEP) based on best practices in eLearning. Online students are a significant portion of Wake Tech's student population and Wake Tech offers more online classes than any other community college in North Carolina. However, student performance in those classes has lagged behind that in traditional classes by about 5% on average. The disparity is particularly evident in high-demand, "gateway" courses, and student surveys confirm that many lack the skills they need to do well in an online environment. For the WTCC Research Symposium, we propose to present a poster on the findings from the Department of College Initiatives and Assessment's research on EPIC Priority Online course success rates. We will also present general information about EPIC certification and student and faculty experiences with online teaching and learning. Data on course success rates and withdrawal rates before and after the implementation of the e-Learning Introduction (ELI) course for online students provide evidence of improved student persistence and student success in Priority online courses. Prior to EPIC, success rates were decreasing and withdrawal rates were increasing in online courses. Since ELI launched in Spring 2015, success rates have improved significantly in Priority courses. In Fall 2015, success rates also increased for seated courses, which was an unanticipated outcome of implementing ELI. Overall, our data will show success rate comparisons by semesters and the significant improvement over time for EPIC Priority Online Courses.