Health Career Programs

2017

This report will examine the successes and areas for improvement for Health Career Programs 2017 summer experience.

Annual Report

TABLE OF CONTENTS

I. Acknowledgements

The success of the summer programs offered by the Office of Student Life & Health Career Programs (HCP) is the direct result of a team of dedicated individuals pulling together resources to help students prepare for future careers in the health professions. In an effort to acknowledge most, we will undoubtedly forget someone whom we intended to say thank you, so to all who are reading, "Thank you! Thank you for your continued support of our students and our programs!"

To the University of Tennessee Health Science Center administration: Chancellor Dr. Steve Schwab, Executive Vice Chancellor Dr. Ken Brown, and Vice Chancellor Dr. Lori Gonzalez, without your support, financially and professionally, the summer programs would not exist. We are proud to say that we have extraordinary support from within our institution.

To Drs. Stan Covington and Angela Finerson, and Mr. Nelson Strother: thank you for your assistance in selecting an excellent group of students. The partnership with your colleges is such a blessing for our students.

To Elise Moore in the Office of Special Events & Community Affairs: thank you for your continued assistance to ensure the Tennessee Institutes for Pre-Professional program is a success. Your support is greatly appreciated.

To the Track III faculty of the Colleges of Medicine and Pharmacy: thank you for your time and energy to teach our students not only the content knowledge, but how to be successful.

To the Track II faculty: Ms. Evie Cornell, Dr. Jermaine Johnson, Dr. Bruce Keisling, Ms. Laura McCormick, and Mr. Wayne Mullins, the students are able to achieve their dreams because you care.

To the Track I preceptors: the exposure you provide to our students is invaluable to their career development. The students may have already said thank you, but please receive it one more time, "Thank you!"

To Ms. Cristina Gewin and Ms. Alesia McQueen: thank you for all of your hard work in preparing the exams for our Track III students and ensuring test days went smoothly.

To the SASSI staff: Kathy Gibbs, Tia Kofahl, Courtney Bell, Laurie Brooks, Sarah Dunnavant, Nikki Dyer, Sandra Mackey, Jasmin Mayen, and Tammy McCray, thank you for working so hard to encourage and guide the TIP students into academic success. From facilitating workshops and/or assessments, helping find books in the library, meeting with a student in crisis, or giving encouragement, it is appreciated more than we can say.

To the OED staff: thank you for your continued support and for helping our students become culturally well-rounded.

To our awesome student assistants: Paul Amartey, Jack Kang, Karen Merriweather, Taylor Money, Damien Stevenson, Luke Tidwell, and Tay Wilson, thank you for being on the front lines and helping make everything flow smoothly. Your energy and knowledge excites, enlightens, and engages.

To all of our superstar tutors: thank you for helping guide our Track III students to success.

To the GEB and SAC staff: thank you for all of the room scheduling, clean-up, tables, IT, etc. You make it all happen!

We look forward to doing it again next year!

Tennessee Institutes for Pre-Professional Students

2017

Annual Report

II. Tennessee Institutes for Pre-Professionals (TIP)

i. Executive Summary

The health care field has had workforce shortages for decades and it is estimated that with the Affordable Care Act (ACA), the newly insured population – about 35 million Americans – is expected to require at least 8,000 additional primary care physicians to meet their needs. The projected shortages range from 20,400 to 45,000 by 2025.[1]

While the overall health of Americans has improved, health disparities still exist among many populations within the U.S Racial and ethnic minority populations and rural populations, for example, have poorer access to care and are less likely to receive preventive care and more likely to experience language barriers. Additionally, research suggests that physicians from these racial and ethnic backgrounds, typically underrepresented in medicine, are more likely to practice in areas designated as medically underserved.[2]

In 2013, about 32 percent of the U.S. population identified as Black or African-American, American Indian, and Hispanic or Latino[3], but only represented approximately 8.9 percent of the physician workforce.[4] A key component to increase quality, competent care throughout the nation is a diverse workforce[2] and Tennessee Institutes for Pre-Professionals (TIP) was designed to address the inequities that exist within professional school education, patient care, and educational opportunities for traditionally underrepresented students. The program uses three tracks (Track I, Track II, and Track III) as a conduit to accomplishing its goal of increasing the number of underrepresented minorities in health professional programs (see page 9 for individual track descriptions).

Of our one-hundred eighty-eight (188) submitted applications, one-hundred twenty-three (123) were reviewed as complete and TIP faculty and staff successfully supported sixty-two (62) students in the 2017 summer program. The students reported strong satisfaction with the program's ability to help them pursue their career goals in all three tracks. Faculty also expressed their overall contentment with the program and the students. However, there is always room for improvement which will help with future success of the program. Below we identify the updates to the 2017 program, as well as areas we will look to improve upon in 2018.

ii. Program Improvements

2017 UPDATES	2018 PROGRAM IMPROVEMENTS
TIP Track I	
• A full-time student assistant was assigned to Track I to facilitate Friday sessions for consistency in services.	• Utilize Blackboard for more book and internship discussions to monitor the Track I students' experience; also for schedule changes.
• Improved internship training session to foster and highlight professionalism and learning in a clinical setting, as well as to help the students gain a better understanding of how to maximize their shadowing experience.	• Continue simulation experiences in the UTHSC Nursing Simulation Lab and Pharmacy Compounding Lab.
• A Student Assistant panel was provided exclusively for Track I students to learn more about the application process for graduate/professional school, life as a professional student, etc.	• Include verbal and speed reading workshops as assessment follow-up to improve reading rate/comprehension.
• Incorporated more team-building exercises.	• Consider options for rotation-style shadowing.
• Assigned groups presentations for both the weekly internship discussion and book discussion for the students to facilitate discussion.	• Provide workshops on the following: taking the PCAT/DAT/MCAT/GRE, timeline of admissions process/when to apply, mock interviews.
• Incorporated SWOT analysis	
• Created an activity to familiarize students with the City of Memphis.	
TIP Track II	
• Extended meetings with SASSI Educational Specialists to provide more in-depth test-taking strategies	• Make individual tutoring available on an as-needed basis.
• Highlighted benefits of SASSI and how maximize its resources during the program and beyond.	• Increase biochemistry and chemistry sessions, decrease physics session for the MCAT cohort
• Utilized Kaplan reporting portal to hold students more accountable with the goal of increasing test performance	• Increase chemistry sessions for the DAT/PCAT cohort
• Used a more "all-hands on deck" approach when meeting with students to discuss performance	• Provide student panel workshop to provide more insight into the admissions process; mock interviews.
• Increased staff presence during lectures to supplement faculty and Student Assistants	• Check in with students through one-on-one meetings
• Provided on-site Kaplan instruction for MCAT cohort, in conjunction with online course.	• Provide on-site instruction for GRE cohort
TIP Track III	
• Updated Pharmacy courses to reflect recent curriculum changes in the College of Pharmacy	• Streamline the courses and schedule for the College of Pharmacy
• Had Student Assistants contact each participant before orientation for an initial introduction.	• Include "Break for Boards" events.
• Scheduled question groups/check-in sessions with SASSI Educational Specialists for each cohort	• Review curriculum and overall program support for College of Dentistry, as needed.
• Engaged in more consistent communication with SASSI regarding student progress and wellbeing.	• Work with SASSI to develop strategies to provide more mental health support.

iii. General Information

The Tennessee Institutes for Pre-Professionals (TIP) Program is a state-wide effort whose objective is to increase the representation of various groups of students who are underrepresented in the health professions. TIP operates on the campus of The University of Tennessee Health Science Center (UTHSC). Since TIP's inception in 1987, one-thousand six-hundred sixty-one (1,661) students have participated.

Program participants are all undergraduate students or new graduates. The participants are recruited from colleges throughout Tennessee and bordering states, as well as other states where there are Historically Black Colleges and Universities (HBCU) and sizeable concentrations of Tennessee residents (e.g. Mississippi, Georgia).

A total of four-hundred ninety-five (495) applications were created. One-hundred eighty-three (183) applicants opened the application, but did not enter any information; one-hundred twenty-four (124) applicants were denied because their applications remained incomplete despite repeated efforts to expedite their completion; sixty-seven (67) applicants were denied because of academic deficiencies in their records and/or ineligibility; fifty-six (56) applicants were accepted and of those accepted, four (4) declined the offer, two (2) were ineligible due to residency status and/or insurance requirements, three (3) withdrew their intent to participate due to personal reasons, and one (1) did not confirm their acceptance despite contacting them on numerous occasions to do so; two (2) applicants were waitlisted however, we were unable to grant them admission to the program. As is normally true, the majority of accepted students were women. Thirty-nine (39) women and twenty-two (22) men participated in the 2017 TIP Program.

Out of the sixty-one (61) participants, fifty-two (52) students attend/attended Tennessee undergraduate institutions. The number of students from various undergraduate institutions is reflected in Table 1 below.

The distribution of students relative to their professional school interest and TIP Program track is summarized in Figures 1 and 2, respectively.

Table 1. Distribution of Students by Institution

Institution	Number of Students
Bethel University	1
Carson-Newman University	1
Christian Brothers University	1
Emory University	1
East Tennessee State University	1
Howard University	1
King University	2
LeMoyne-Owen College	1
Lipscomb University	1
Mississippi College	1
Middle Tennessee State University	5
Rhodes College	2
Rust College	1
Southern Methodist University	1
Trevecca Nazarene University	1
Tennessee State University	2
University of Memphis	19

University of Missouri	1
Union University	1
University of the Philippines Manila	1
University of Tennessee – Chattanooga	2
University of Tennessee – Knoxville	11
Virginia State University	1
Vanderbilt University	1
Xavier University	1

Figure 1. Distribution of Students by Professional School Interest

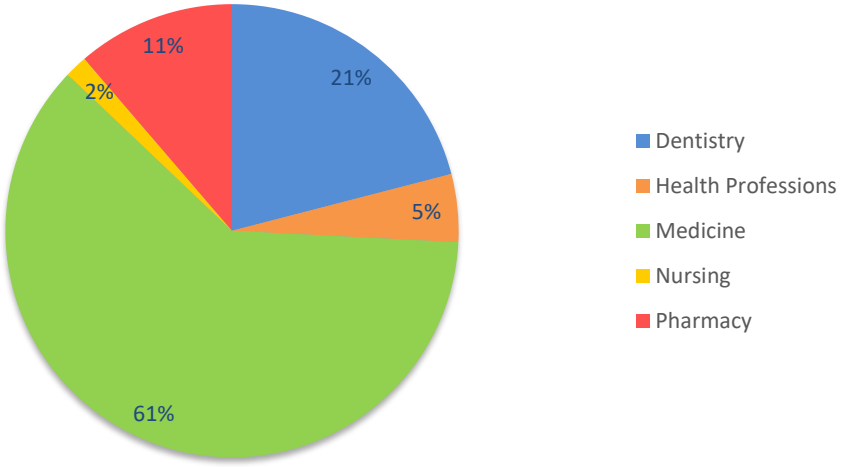
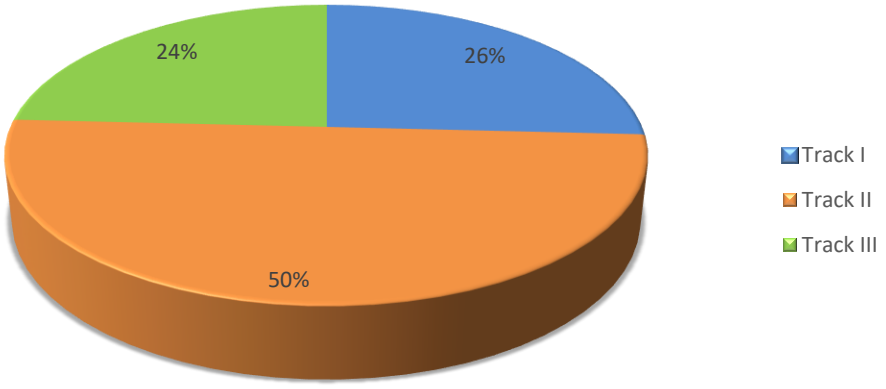


Figure 2. Distribution of Students by Track



iv.. Program Description

There are three distinct components, or tracks, of the TIP Program. The program ran for seven-weeks between the months of June and July.

Track I
Track I provides internship experiences where students work alongside local practitioners in the students' areas of interest. It enables students to fully understand the rigors and challenges of being a healthcare professional. For many, it provides a framework by which students may come to a) appreciate the stark realities of the profession, b) reaffirm their desires to become health professionals, and c) help them better articulate (to admissions committees) their reasons for wanting to pursue the vocation. So often, underrepresented students do not appreciate the importance of acquiring exposure to the health professional setting and are ill-equipped to express substantive reasons for their aspirations of becoming health professionals.

A total of fifteen (15) preceptors hosted "shadowing experiences" for the Track I students: seven (7) physicians, two (2) dentists, one (1) nurse, one (1) nurse practitioner, one (1) physician assistant, one (1) physical therapist, one (1) pharmacist, and one (1) pharmacy laboratory assistant. Track I students worked at their respective preceptors sites Monday through Thursday. On Fridays, the students devoted their time to personal and professional development through academic workshops, site visits, lab simulations, and reflection about their internship experience.

Track II
Members of underrepresented minority groups continue to experience difficulties associated with standardized exams. The Track II component of TIP is a test preparation program, where the intent is to enhance students' understanding of standardized test construction and to improve their skill levels on such exams. This track helps students to identify any deficiencies they may have in their test taking and learning skills. The students then learn how to overcome these deficiencies, which in turn will enable them to achieve the criterion score on the entrance exam critical to professional school admission.

Track III
The participants of the Track III component of TIP have already applied and been conditionally accepted to UTHSC Colleges of Dentistry, Medicine, and Pharmacy, but their eventual matriculation into these colleges requires that they achieve a grade of no less than a "C" in each of the courses offered in this track. The courses offered are the same as many in their first year curriculum (discussed in detail below).

The Track III component also includes a great deal of learning skills preparation. Formal workshops were given for topics such as time management, test and note taking, stress management, personal wellness, etc., but time in the schedule also allowed students the opportunity to work individually.

v. Program Participants

FACULTY

Track I was facilitated by HCP staff. In addition, a preceptor was assigned to each student for various internship exposures. There were six (6) faculty members provided for in-class instruction for **Track II** students in addition to the Kaplan online instructors. Track II faculty were recruited from Memphis University School, White Station High School, University of Memphis, and UTHSC Boling Center. There were eighteen (18) UTHSC faculty members in **Track III** who taught courses to students holding acceptances to the Colleges of Dentistry, Medicine, and Pharmacy.

Track II Faculty

Evie Cornell
MCAT – Physics Review

Jermaine Johnson, Ph.D.
DAT/MCAT/PCAT – Biochemistry/Chemistry Review

Bruce Keisling, Ph.D.
MCAT – Psychology/Sociology Review

Laura McCormick
DAT/MCAT/PCAT – Biology Review

Wayne Mullins
MCAT – Physics Review

Austin Shanks
MCAT – Kaplan Review

Track III Medicine Faculty

Lorraine Albritton, Ph.D.
Professor
Molecular Biology

Joseph Callaway, Ph.D.
Associate Professor
Anatomy & Neurobiology

Angela Cantrell, Ph.D.
Associate Professor
Anatomy & Neurobiology

John Cox, Ph.D.
Associate Professor
Biochemistry & Molecular Biology

Ramareddy Guntaka, PhD
Professor
Biochemistry & Molecular Biology

Tony Marion, Ph.D.
Professor
Immunology

Vicki Park, Ph.D.
Associate Professor
Genetics

Pat Ryan, Ph.D.
Associate Professor & Assistant Chair
Microbiology

Kaushik Parthasarathi, Ph.D.
Associate Professor
Physiology

Don Thomason, Ph.D.
Professor & Dean of Graduate Health Sciences
Physiology

Mike Whitt, Ph.D.
Professor & Chair
Molecular Biology

Track III Pharmacy Faculty

Hassan Almoazen, PhD.
Assistant Professor & Chair
Pharmacy Math

Suleiman Bahouth, PhD.
Professor
Pharmacology

Sarka Beranova, PhD.
Associate Professor
Biochemistry

Brad Boucher, PharmD.
Professor
Foundations

Cathy Crill, PharmD.
Associate Professor
Introduction to Patient Care

Shannon Finks, PharmD.
Professor
Therapeutics

Christa George, PharmD.
Associate Professor
IPECS

Santosh Kumar, PhD.
Associate Professor
Biochemistry & Fundamentals of Drug Action

Sharon McDonough, PhD.
Assistant Professor
Foundations

George Perry, PharmD.
Assistant Professor
Dermatology & Therapeutics

Stephanie Phelps, PharmD.
Professor & Associate Dean
Overview & Foundations

Chasity Shelton, PharmD.
Associate Professor
Introduction to Patient Care

Laura Thoma, PharmD.
Professor
Pharmacy Compounding

Jennifer Williams, PharmD.
Associate Professor
Co-Curricular

James Wheeler, PharmD.
Assistant Professor
Dermatology

Ryan Yates, PhamD., PhD.
Professor
Fundamentals of Drug Action

vi. Program Operation

CURRICULUM

Track I

As has been mentioned, the primary objective of Track I is to provide students with an exposure to health science professions. Such experience is essential as students contemplate health professional school applications. Additionally, a number of interesting workshops were also scheduled, including but not limited to: Art of Networking, Professionalism, Time Management, and Meet the Deans. Track I students also completed Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) training and certification.

Track II

The curriculum focused on the application of the scientific body of knowledge contained in the specific admission tests required for acceptance to professional school. The fact that Track II students have completed the minimum science pre-requisites enables the curriculum to be structured in a test-specific manner.

The minimal pre-requisites for professional school admission tests require that students have taken the following courses: biology, general chemistry, organic chemistry, and physics and psychology/sociology (MCAT only). The online Kaplan course required students to complete several full-length practice tests during the program, in addition to supplemental online assignments through the Kaplan program. Review sessions were spent in class with on-site faculty reviewing all of the appropriate subjects. Faculty were trusted to gauge weak subject areas and spend more time on those accordingly.

TRACK II EXPOSURES

Lectures	DAT Hours of Exposure	GRE Hours of Exposure	MCAT Hours of Exposure	PCAT Hours of Exposure
Biology/Biochemistry	6	-	9	9
Critical Thinking/Reading Comprehension	6	-	9	6
General/Organic Chemistry	6	-	9	15
Perceptual Ability	6	-	-	-
Physics	-	-	9	-
Psychology/Sociology	-	-	9	-
Quantitative Reasoning	6	10	-	6
Review Sessions with Faculty	32	-	50	28
Verbal Reasoning	-	10	-	-

Track III

The Track III pre-matriculation program extends an acceptance to students contingent upon their successful completion of the seven-week TIP Program that consists largely of courses that will be taken during the regular school year. These courses are taught by members of the UTHSC faculty. Students accepted to the Colleges of Dentistry or Medicine had 101 hours of instructional time which consisted of the following courses: Gross Anatomy lectures (16), Gross Anatomy lab (16), Biochemistry (7), Genetics (7), Immunology (6), Microbiology (10), Molecular Biology (9), and Physiology (30). Students accepted to the College of Pharmacy had 85.25 hours of instructional time which consisted of the following courses: Biochemistry (8), Dermatology – Therapeutics (15), Foundations (13.75), Fundamentals of Drug Action (11), Introduction to Patient Care (6), IPECS (3), OSCE (5), Pharmacology (2), Pharmacy Compounding lectures (6.5), Pharmacy Compounding lab (8), and Pharmacy Math (7).

Additionally, all students received regular meetings with an Educational Specialist from Student Academic Support Services and Inclusion.

v. Program Outcomes

STUDENT PERFORMANCE

Track II students were offered basic science review courses and were required to take several mock DAT/GRE/MCAT/PCAT standardized exams.

DAT

DAT students had exposure to material including practice questions and full-length tests via Kaplan, as well as Crack the DAT. In all sections, students saw an average increase of 1.80 points. On average, students increased their composite score by 14.44 points with the largest increase being 30 points. DAT students saw the greatest improvement in Perceptual Ability. The students' diagnostic and final mock exam scores were taken from the Kaplan DAT reports and are summarized in Figures 3 and 4 below.

Figure 3. DAT Diagnostic and Final Mock Exam Average Score Comparison

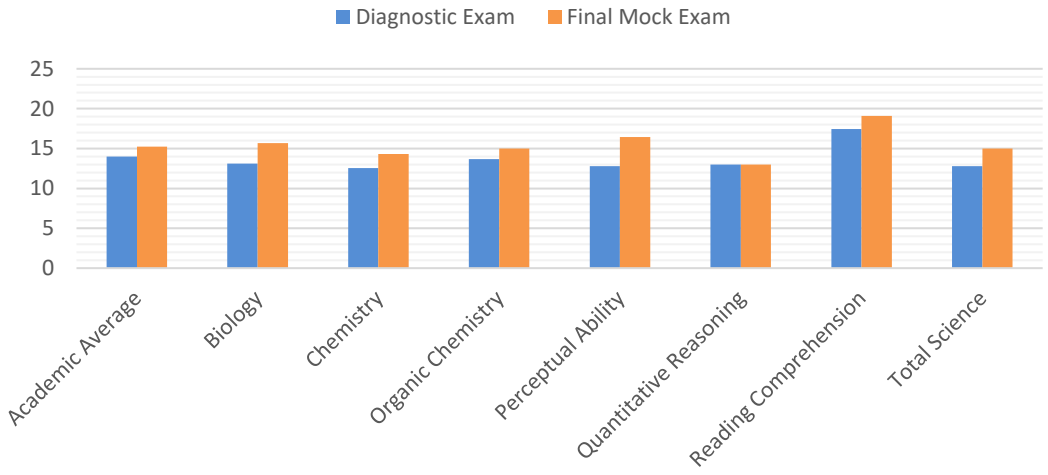
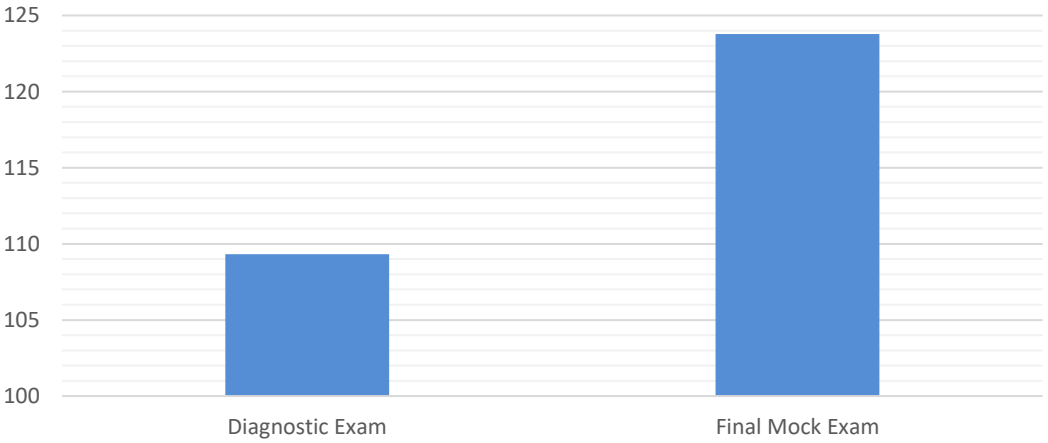


Figure 4. DAT Diagnostic and Final Mock Exam Average Composite Score Comparison



GRE

GRE students had exposure to practice questions and full-length tests via Kaplan. In all sections, students saw an average increase of 3.67 points. On average, students increased their overall score by 7.33 points. GRE students saw the greatest improvement in Verbal Reasoning. The students' pre- and post-test scores were taken from Kaplan GRE reports and are summarized below in Figures 9 and 10.

Figure 9. Mock GRE Average Pre- and Post-Test Score Comparison

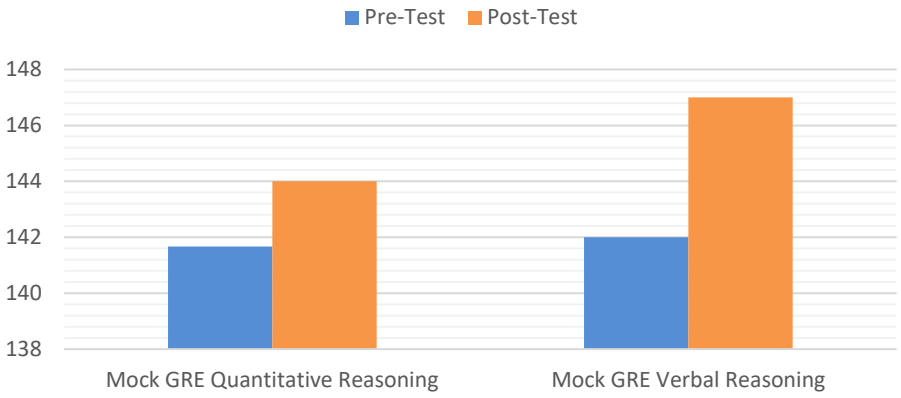
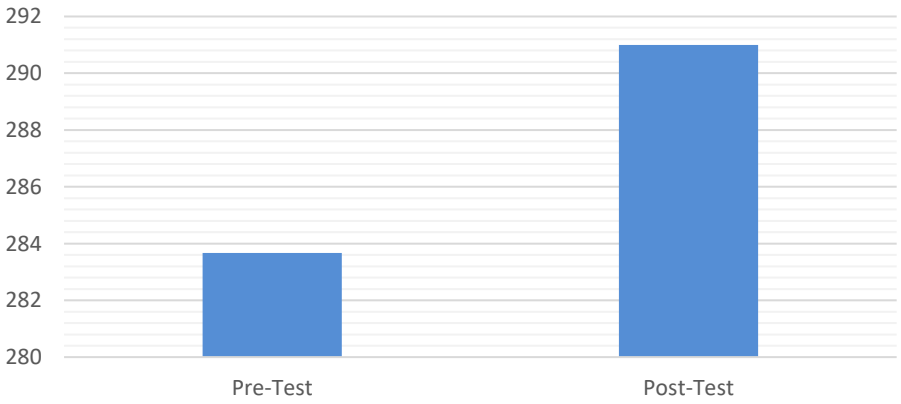


Figure 10. Mock GRE Average Overall Score Comparison



MCAT

MCAT students had exposure to practice questions and full-length tests via material and resources provided by Kaplan. In all sections, students saw an average increase of 1.29 points. On average, students increased their overall score by 5.17 points with the largest increase being 16 points. MCAT students saw the greatest improvements in Critical Analysis & Reasoning Skills (CARS) and Psychology/Sociology. The students' diagnostic and final mock exam scores were taken from the Kaplan MCAT reports and are summarized in Figures 5 and 6 below.

Figure 5. MCAT Diagnostic and Final Mock Exam Average Score Comparison

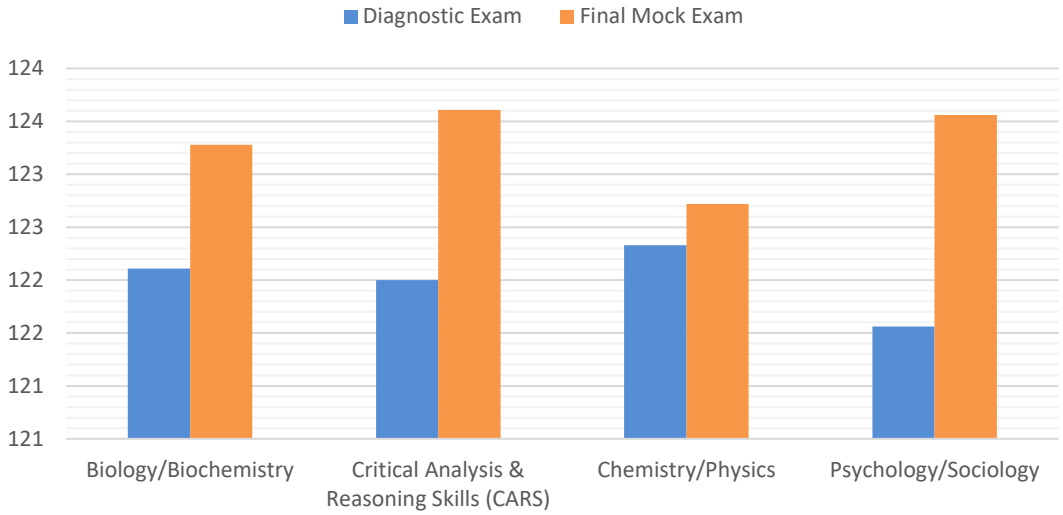
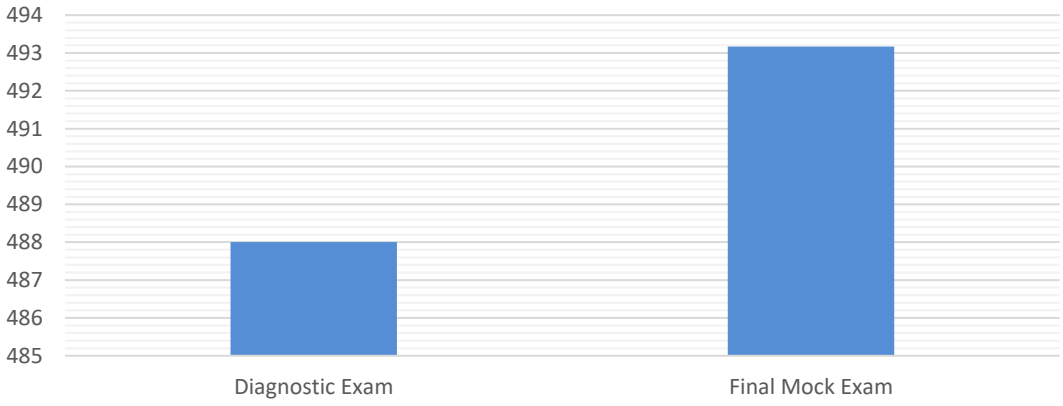
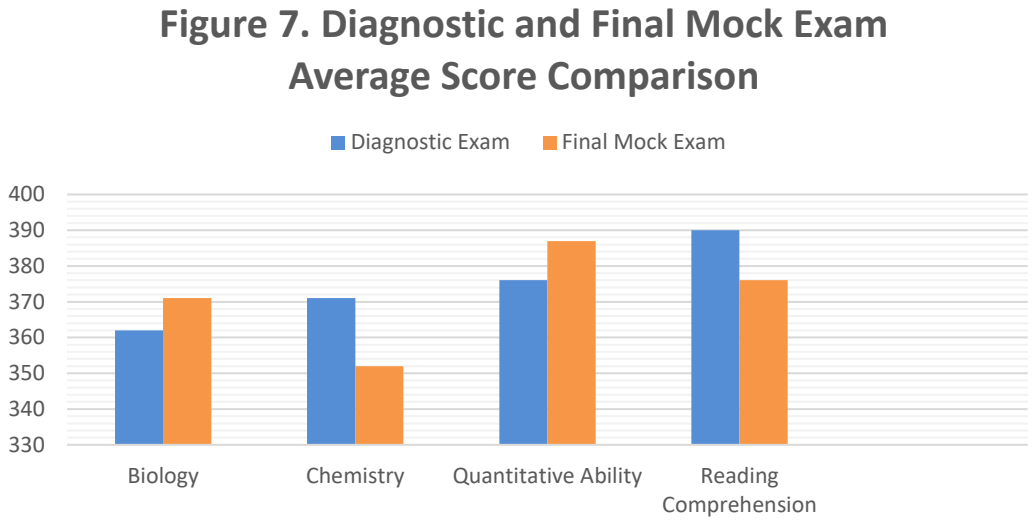
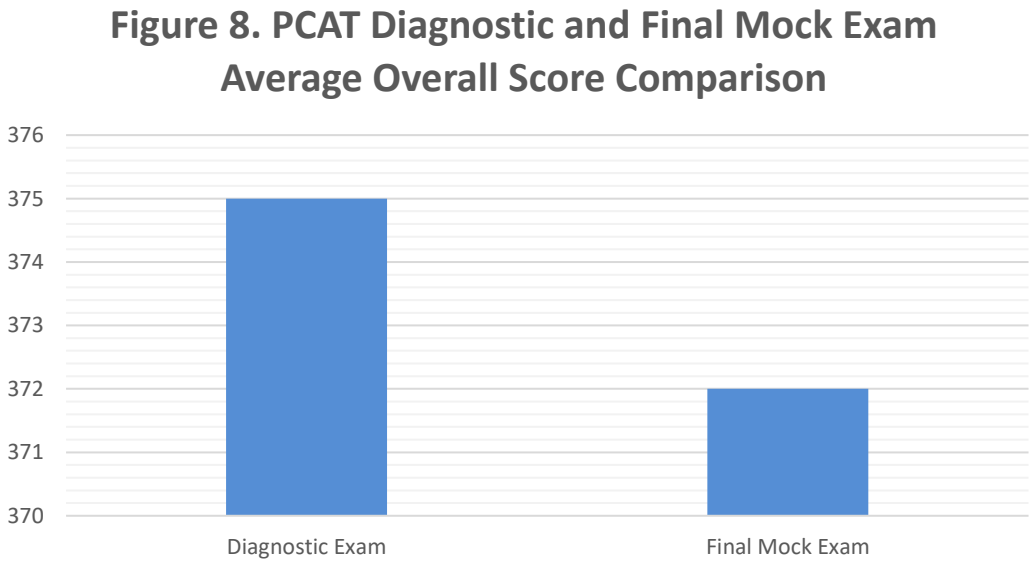


Figure 6. MCAT Diagnostic and Final Mock Exam Average Overall Score Comparison



PCAT
PCAT students had exposure to material including practice questions and full-length tests via Kaplan, as well as Crack the PCAT. In all sections, students saw an average decrease of 3.25 points. On average, students decreased their overall score by 3 points. PCAT students saw the greatest improvement in Quantitative Ability and Biology. The students' diagnostic and final mock exam scores were taken from the Kaplan PCAT reports and are summarized in Figures 7 and 8 below.





Track III
Successful performance in Track III was judged by receiving no grades less than a "C" in any course. Thirteen (13) students matriculated in the Fall as members of the Class of 2020 in the Colleges of Dentistry, Medicine, and Pharmacy. Of the students, 2 were College of Dentistry students, 6 were College of Medicine students, and 5 were College of Pharmacy students.

LEARNING SKILLS DEVELOPMENT

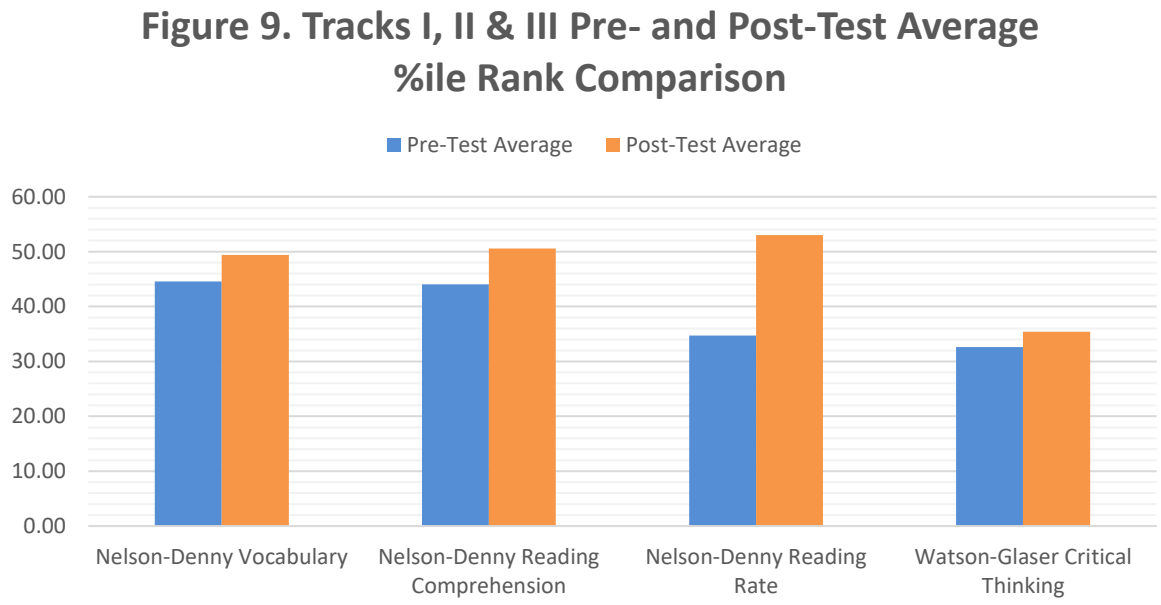
TIP 2018 Report of Pre- and Post-Assessments

All TIP students were administered the following learning assessments: The Nelson-Denny Reading Test and the Watson-Glaser Critical Thinking Appraisal. The students' results were used as a tool to develop individual learning plans by Educational Specialists when giving academic advice in order to assist them in improving their skills before matriculation.

In all sections, students saw an average increase of 8.11 points. Students saw the greatest improvement in the Nelson-Denny Reading Rate. The range of scores indicative of average to excellent performance on the Nelson-Denny Reading Test and the Watson-Glaser Critical Thinking Appraisal falls between the 40th and 99th percentiles. The pre- and post-assessment performance for all tracks is summarized in Figures 9-15 below.

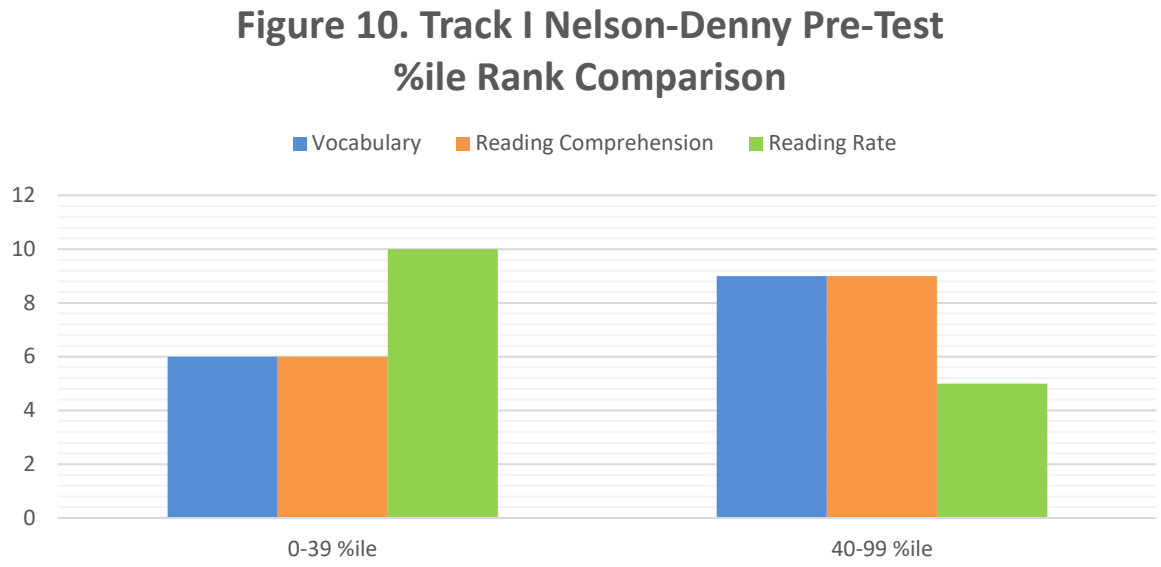
ALL TRACKS

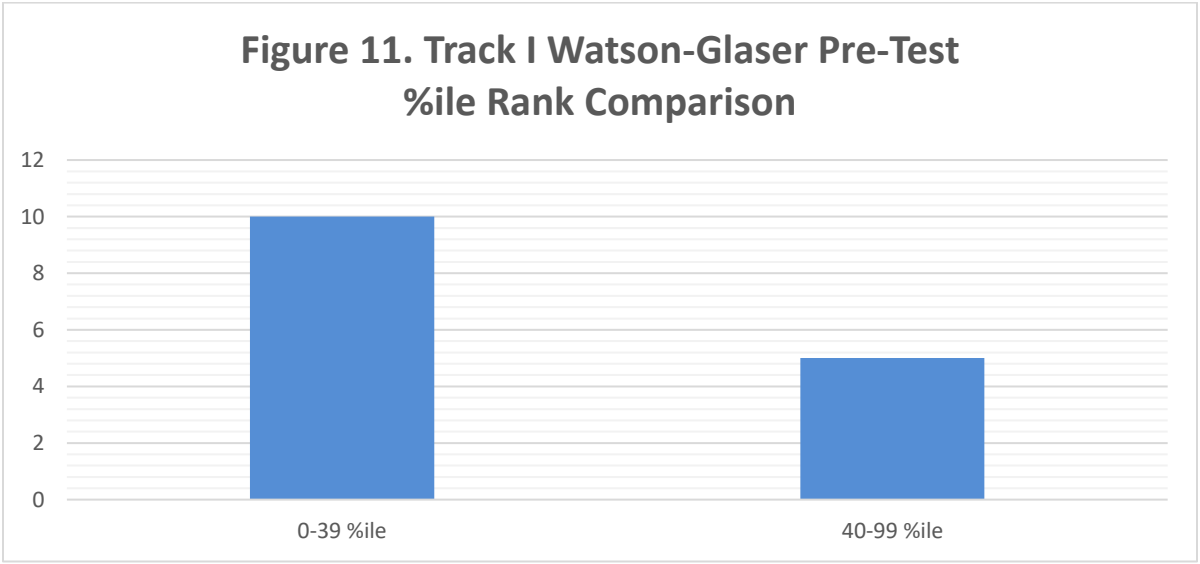
**Two students did not complete the Vocabulary section of the Nelson-Denny pre-assessment*
***One student did not complete the Reading Rate section of the Nelson-Denny post-assessment*
****Twenty students did not complete post-assessments*



TRACK I ONLY

**Track I students completed pre-assessments only*





TRACK II ONLY

**Two students did not the complete the Vocabulary section of the Nelson-Denny post-assessment*
***Two students did not complete post-assessments*

Figure 12. Track II Nelson-Denny Pre- and Post-Test %ile Rank Comparison

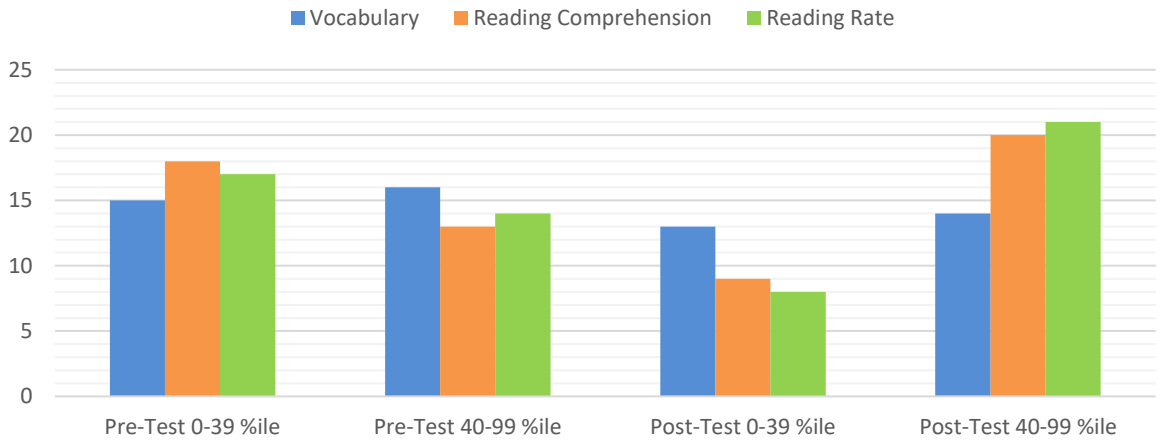
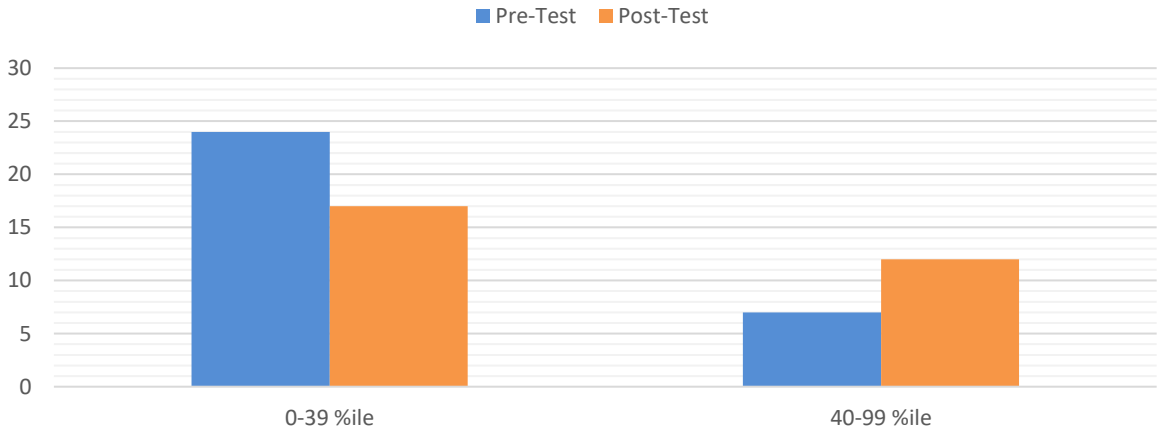


Figure 13. Track II Watson-Glaser Pre- and Post-Test %ile Rank Comparison



TRACK III ONLY

**Three students did not complete post-assessments*

Figure 14. Track III Nelson-Denny Pre- and Post-Test %ile Rank Comparison

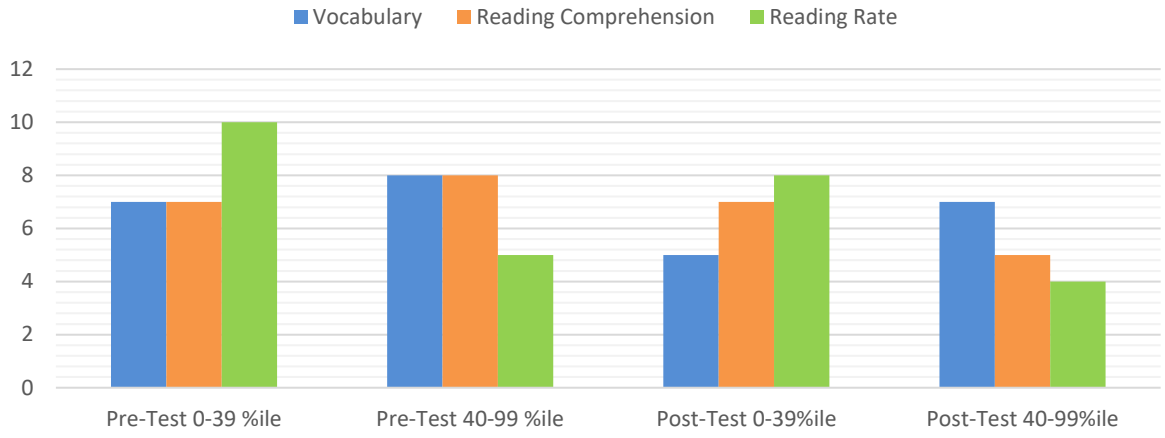
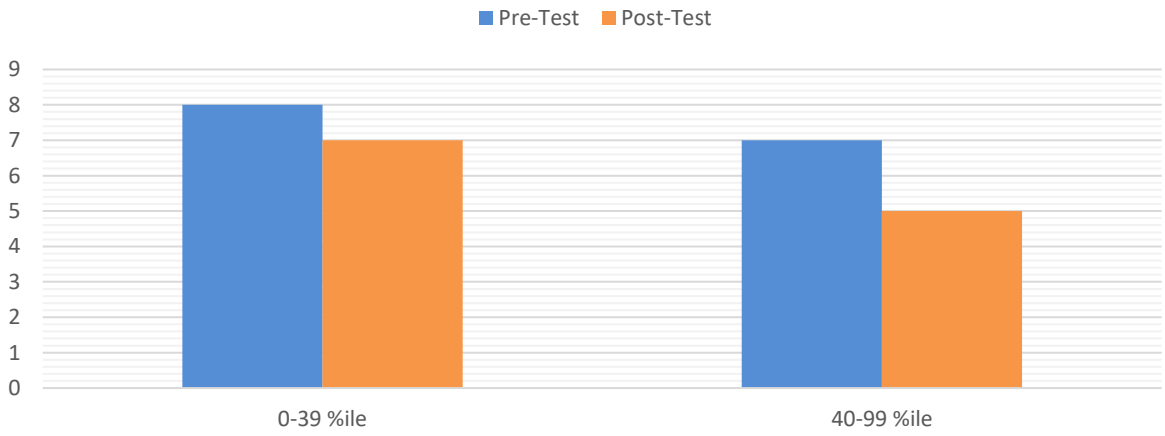


Figure 15. Track III Watson-Glaser Pre- and Post-Test %ile Rank Comparison



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