



RUTGERS

UNIVERSITY | NEW BRUNSWICK

# Leveraging Partnerships to Assess Library Impact on Student Learning Via a Longitudinal Study

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*This project is part of the program "Assessment in Action: Academic Libraries and Student Success" which is undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land-grant Universities. The program, a cornerstone of ACRL's Value of Academic Libraries initiative, is made possible by the Institute of Museum and Library Services.*

# Overview

- Formative and summative assessments are traditional and effective methods of determining library impact on student learning. However, they are usually confined to a one-shot information literacy instruction session. One way to step out of the box and gain more information is to track students along their college career and into their graduate program to determine if they are retaining IL skills. The results of an ongoing longitudinal study of students will be presented.
  - McNair Post Baccalaureate Degree Achievement Program
  - Assessment Approach (Methodology)
  - Results thus far
  - Recommendations
  - Best Practices

## Ronald E. McNair Post-Baccalaureate Degree Achievement Program

- Rutgers University: Student Access and Educational Equity
  - McNair Summer Research Institute is an intensive eight-week (June & July) research experience that is fully funded by the Rutgers McNair Program. During the summer, students will work closely with tenured and tenure-tracked faculty to define, develop, and conduct a research project. Additionally, scholars can receive 3-6 degree credits for participation in the Summer Institute, as well as other great benefits, such as:
    - Independent research with a faculty member
    - Paid stipend
    - Institutional visits to graduate programs
    - Professional development workshops
    - On-campus housing and meals for entire eight weeks

<https://access.rutgers.edu/mcnair>



# Program History

- in operation on the Rutgers University—New Brunswick campus since 1991
- serves low-income, first generation college students and students from groups historically under-represented in graduate education who aspire to attain a doctoral degree
- designed to prepare rising juniors (and some rising seniors) with demonstrated academic potential, with the research and scholarship skills necessary for entry into doctoral studies

McNair Faculty Orientation, April 2017

# Federally Mandated Objectives

- 90% in current year must complete scholarly/research activities
- 65% of participants must enroll in post graduate program immediately after receiving bachelor's degree
- 80% of graduate students will persist onto the 2nd year of the graduate program
- 35% of McNair scholars will gain a doctoral degree within 10 years of bachelor's degree completion

# Scholar Responsibilities

- **Spring**
  - Participate in the McNair Basics of Research course (1.5 credits)
  - Complete an annotated bibliography
- **Summer following acceptance**
  - Participate in the McNair Summer Research Institute
- **Academic Year following Summer Institute**
  - Graduate Education Preparation Course I or II
  - Continue conducting research
  - Narrow list of graduate schools
  - Apply for scholarships/fellowships

McNair Faculty Orientation, April 2017



# Scholar Responsibilities (Continued)

## **Summer between Junior and Senior Year:**

- Participate in summer research program
- Assemble application materials
- Prepare for GRE
- Take GRE Exam

## **Senior Year, Fall Semester:**

- Apply to doctoral programs & fellowships
- Present on senior research projects
- Present at Conferences and/or Symposiums
- Prepare for the next phase...Doctoral Program

McNair Faculty Orientation, April 2017



# Summer Research Institute 2017: Components

## Research Design Course (75%)

- Students will utilize independent research time to work directly on their areas of research, which includes lab time, meeting with faculty-research mentors, and working independently in the library or lab. This course will assist students in **developing strategies for seeking, accessing, acquiring, and organizing information for research purposes, learning formal documentation style for researched disciplines and bibliographic and citation techniques for research findings.**

## Program Workshops & Activities and Presentation Skills (25%)

- These courses will provide students with assistance in technical writing, writing in their disciplines, and public speaking skills.

# Library Participation

- Basics of Research (Spring) 1.5 credits
  - Metacognition begins
  - Students begin to think like researchers
  - Compare/Contrast a literature review vs annotated bibliography
  - Create an annotated bibliography

Store Information

**A: Squirrel**



Rely on the Web

**B: Spider**

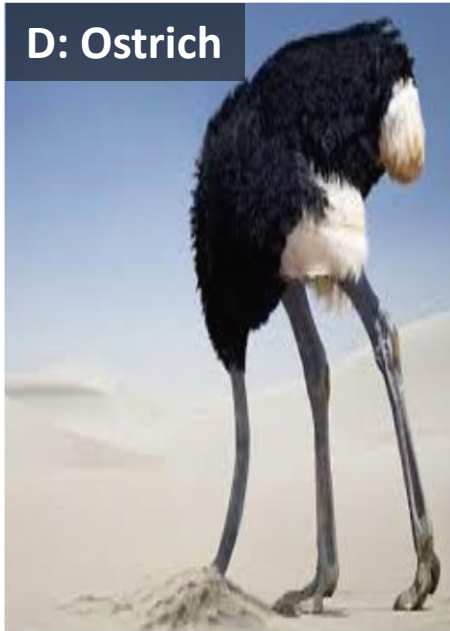


Rely on single source

**C: Panda**



**D: Ostrich**



Avoid Looking

**E: Vulture**



Rely on scraps

Choose Your **Information Seeking Behavior**

Matthew Borg & Erica Stretton

# Library Participation

- Bibliography & Research Techniques/Research Design Course (Summer) 4-6 credits
  - Select and use appropriate resources for specific research needs
  - Evaluate information sources
    - Explain strengths and limitations of various sources of information
  - Explore discipline specific resources
  - Explain the research process
  - Learn the structure and process of researching and writing a literature review
  - Use information ethically and legally by proper acknowledgement of sources

# Instructional Design Perspective

- support institutional goals at Rutgers University, particularly the priority *to transform the student experience through technology and support using University resources*, which will increase the scholarship and research at the university.
- The McNair Program tracks its students through completion of their undergraduate degree and for ten years following graduation.
  - Proving long-term benefits of library interaction on student preparation and success for graduate studies and doctoral research can influence the longevity of our own instruction program.

# Instructional Design Perspective

- benchmarks for success provided by the grant funding entity:  
Dept. of Education
- our assessment of the library instruction has been summative,  
focusing on the final course grade
- Implementing formative assessment measures will influence  
the learning outcomes and instruction strategies/ tools  
currently being used
- interest in how the students reflect upon their own research  
skill development

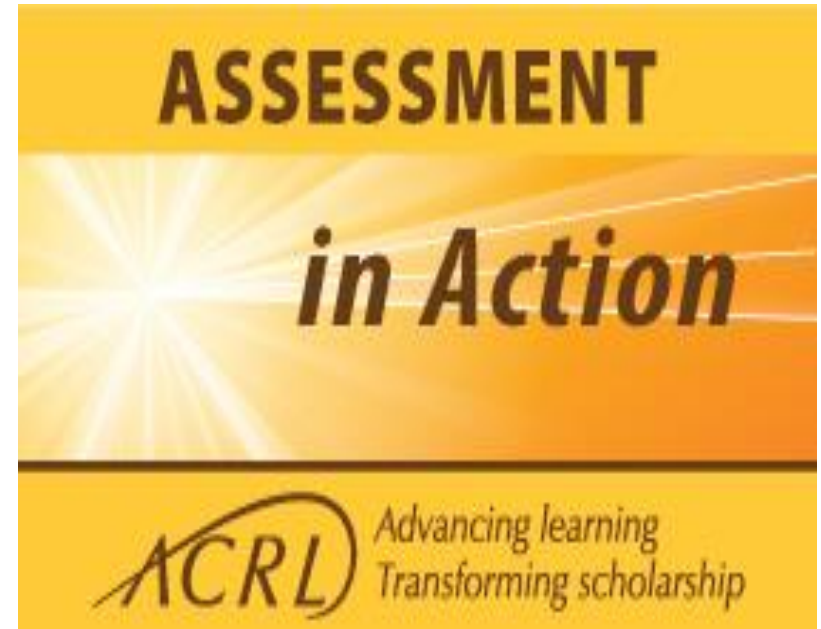
# Instructional Design Perspective

- Such investigations
  - will assess the impact of our collaboration with the library on the learning of several cohorts of McNair scholars
  - lay the groundwork for the development of an assessment plan
  - will illuminate new paths and strategies of instruction
  - will enhance our partnership: Library and McNair program
  - can become a model for similar partnerships



## AiA Project Goal

*Following highly structured, organized library interactions in the spring and summer as rising juniors and seniors, do McNair students retain research skills toward their ultimate goal of pursuing a doctoral degree?*

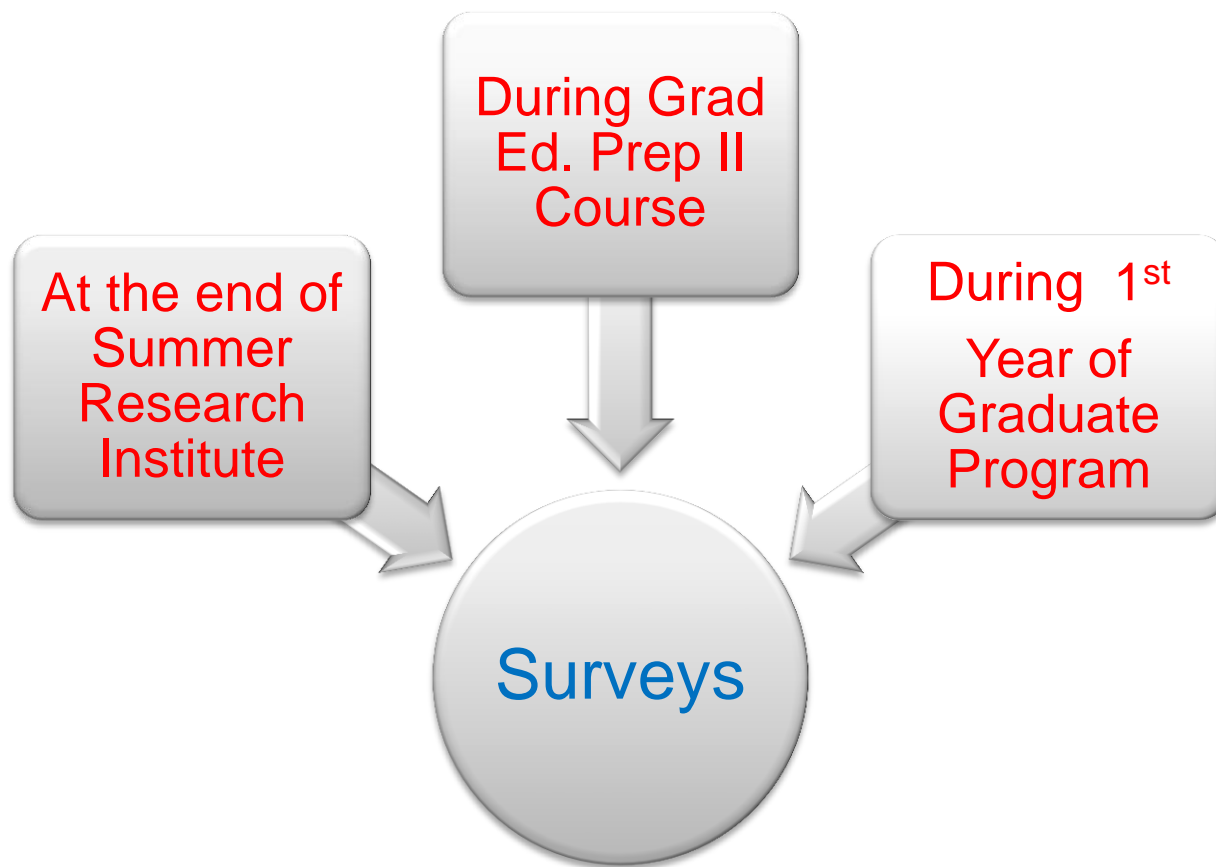


# The Research Project: McNair Scholars who are exposed to library instruction...

- retain IL skills gained in the library courses
  - While completing the undergraduate program
  - While enrolled in a graduate program
- are agile in adapting to new information tools, services, & systems
- make & maintain connections with relevant subject librarians
  - as undergraduates
  - as graduates

# Methodology: Starting 2015

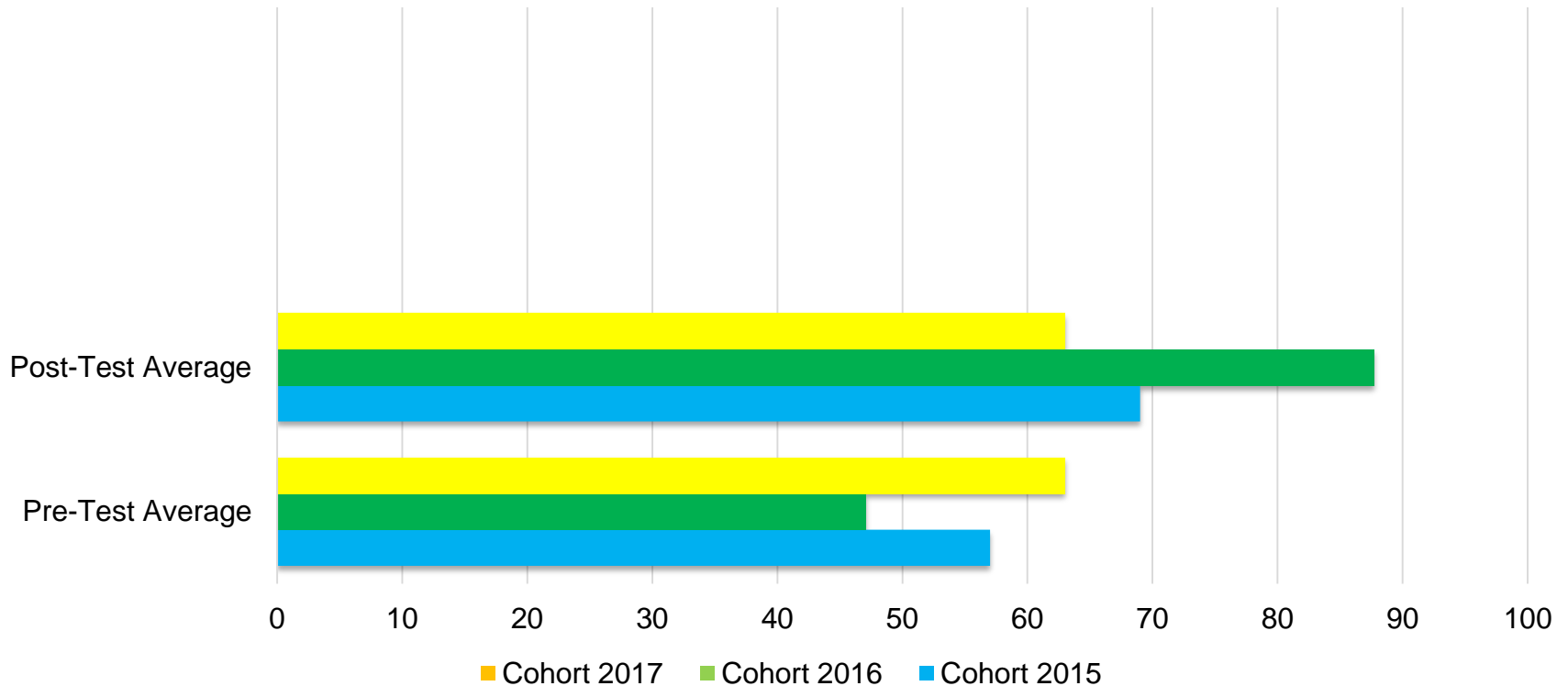
- Pre-Post Tests & Surveys



# Methodology

Criteria	Actions	Evidence
80% of students indicate that the library interactions in the McNair Program enhances their ability to complete their research projects as undergrads and grad students	Incorporate research journals to aid metacognition  Annotated Bibliography Project  Research Proposal Project  Database Presentation	Pre-Test in the spring  Post-Test in the summer   14-question survey as undergraduates in the Grad Prep course
80% of students indicate that they feel comfortable with librarians as undergrads and with their subject librarian as grad students	Use of citation managers appropriate to discipline	17-question survey as first year graduate students

## Pre-Post Test Data 3rd Year of 5-Year Study



# Students

	Cohort 2015	Cohort 2016	Cohort 2017
Enrollment	14	18	14
Grad Prep Survey Responses	8	15	Fall 2017
Post Grad Survey	Fall 2017	Fall 2017	Fall 2018



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Please indicate your major at Rutgers University.

English

Linguistics, Spanish, and Latin American Studies (triple major)

Ecology, Evolution and Natural Resources

Materials Science and Engineering

Biomedical Engineering





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Please indicate your major at Rutgers University.

Nutritional Sciences

Chemical Engineering

Comparative Literature

Cell Biology and Neuroscience

Art History

Public Policy

Exercise Science, Nutrition, and Women & Gender Studies

Psychology

Psychology. Women's and Gender Studies

Africana Studies and Communication

History, Women and Gender Studies



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What is your current GPA?

3.46

3.7

3.59

3.94

3.543

Average: 3.6466



# RUTGERS

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## What is your current GPA?

3.67

3.765

3.7

3.917

3.89

3.5

3.502

3.774

3.66

3.9

3.9

Average: 3.743



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Are you working on any special research projects with a Rutgers faculty member (outside of your regular coursework?)

#	Answer	Count
1	Yes	6
2	No	2
	Total	8

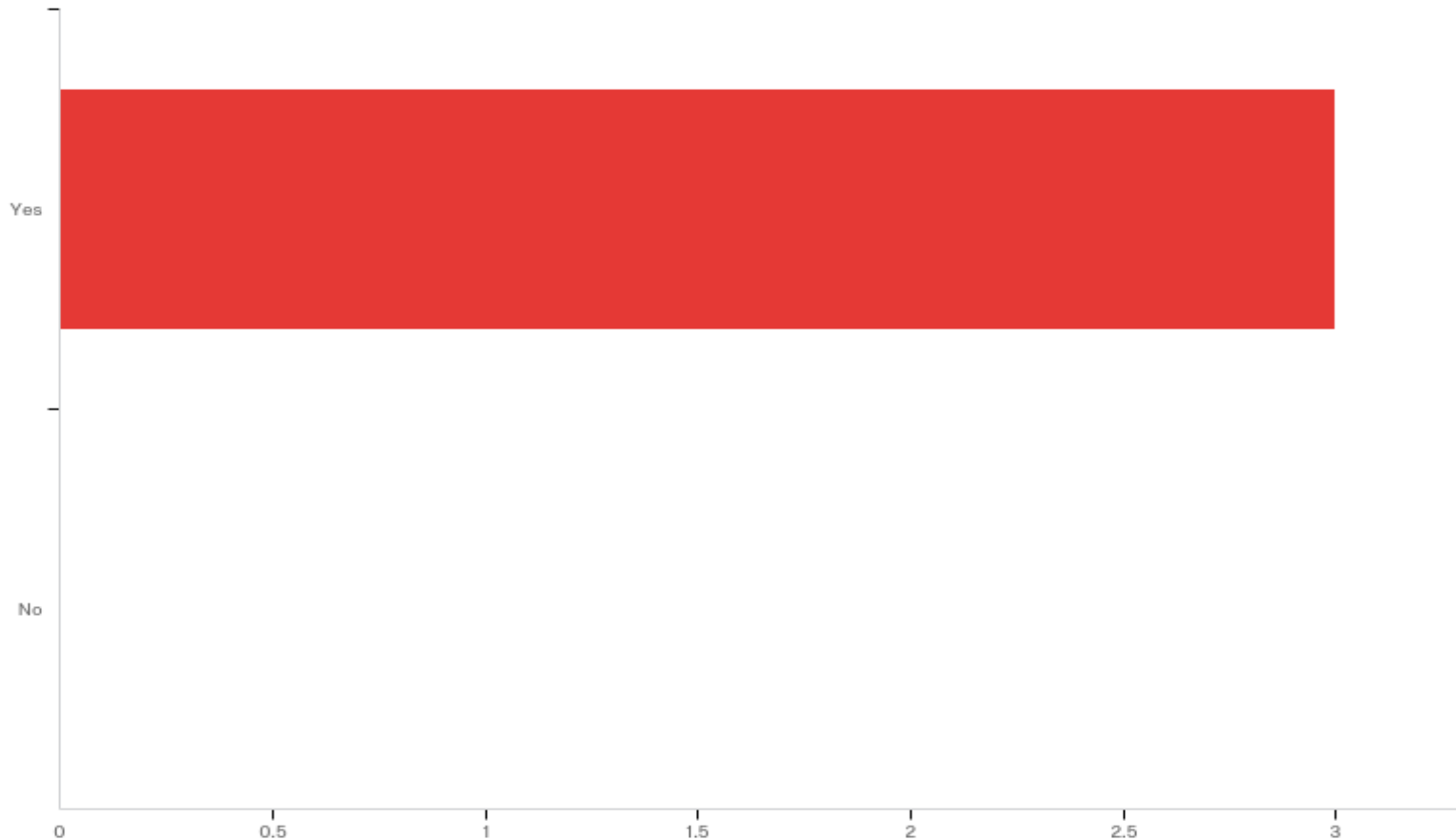
#	Answer	Count
1	Yes	14
2	No	1
	Total	15



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Is this research project a continuation from what you began during the McNair Summer Research Institute? (2015)

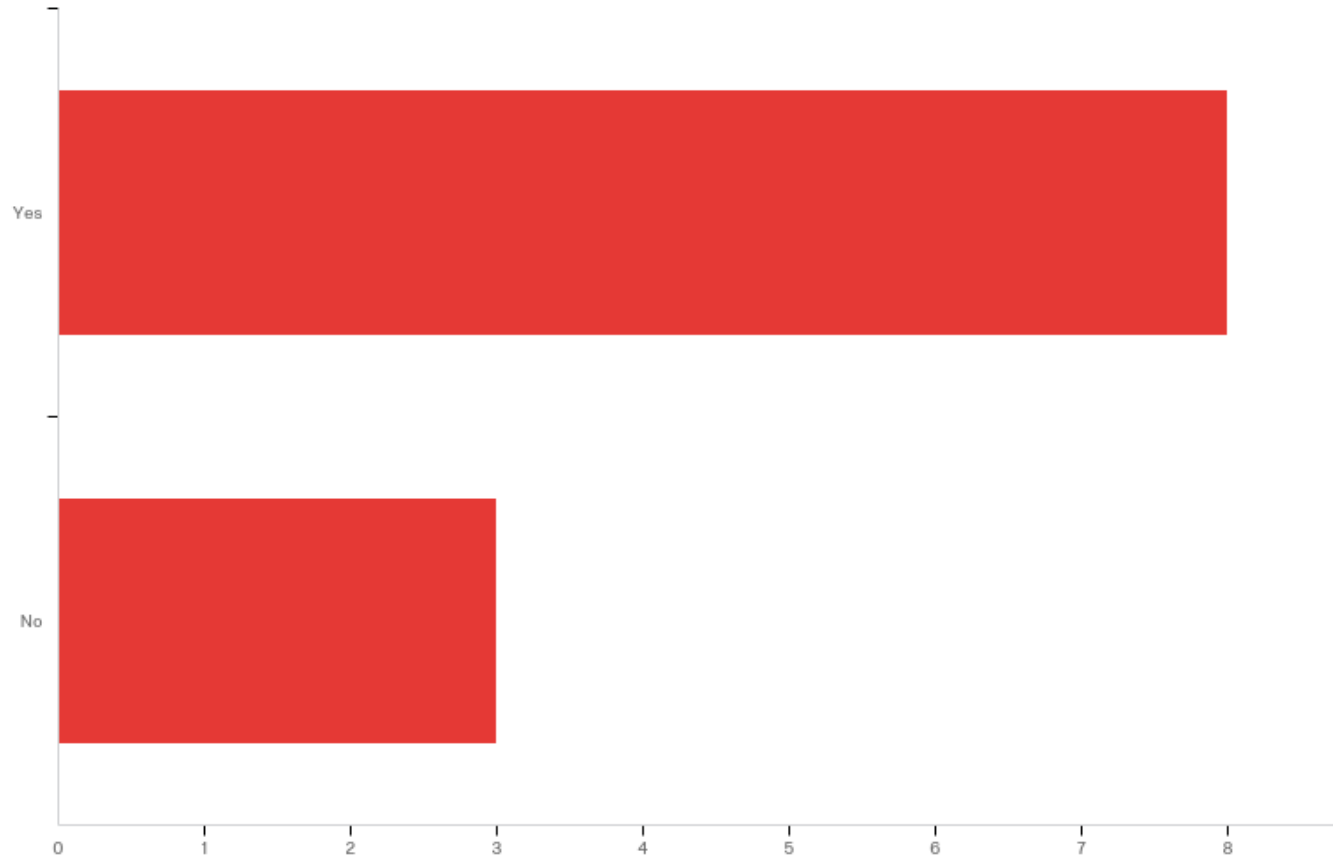




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Is this research project a continuation from what you began during the McNair Summer Research Institute? (2016)





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**Indicate the discipline in which you are doing this research. (Psychology, Engineering, Social Work, Environmental Science)**

Linguistics

Materials Science and Engineering

Engineering





# RUTGERS

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Indicate the discipline in which you are doing this research. (Psychology, Engineering, Social Work, Environmental Science)

Nutritional Sciences

Engineering

Comparative Literature

Cell Biology and Neuroscience

Art History

Public Health, Public Policy, Sociology

Landscape Architecture

Psychology

Psychology

Africana Studies

History



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**What skill that you learned during the Library course of the McNair Summer Research Institute are you able to bring to this special research project?**

Using ref works; boolean tools; how to get book loans/articles not in library

I do not recall.

Research using databases that Rutgers has



# RUTGERS

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**What skill that you learned during the Research Proposal course of the McNair Summer Research Institute are you able to bring to this special research project?**

How to conduct a literature review

Writing Research Proposal, databases and presentation

The use of Refworks

Database researching

Database navigation

Navigating databases

My ability to research and look up specific websites and using appropriate data sets/library reserves for my topic.

Literature Review, Analytical Reading

Utilizing research databases

able to search through databases efficiently

Library Resources



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Do you feel that your overall academic performance has been enhanced by participation in the McNair Summer Research Institute Library course?

#	Answer	Count
1	Not at all	1
2	A little	0
3	Neutral	0
4	Some	1
5	Very much	3
6	Comments:	0
	Total	5



# RUTGERS

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Do you feel that your overall academic performance has been enhanced by participation in the McNair Summer Research Institute Research Proposal course?

#	Answer	Count
1	Not at all	0
2	A little	4
3	Neutral	1
4	Some	6
5	Very much	1
6	Comments:	0
	Total	12



# RUTGERS

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Please indicate whether you think the Library course of the McNair Summer Research Institute has helped your ability to do research in your coursework (i.e. find information relevant to your coursework).

#	Answer	Count
1	Not at all	1
2	A little	0
3	Neutral	0
4	Some	3
5	Very Much	1
6	Comments:	0
	Total	5



# RUTGERS

UNIVERSITY | NEW BRUNSWICK

Please indicate whether you think the Research Proposal course of the McNair Summer Research Institute has helped your ability to do research in your coursework (i.e. find information relevant to your coursework).

#	Answer	Count
1	Not at all	0
2	A little	0
3	Neutral	1
4	Some	7
5	Very Much	4
6	Comments:	0
	Total	12





# RUTGERS

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Please select all that apply. The McNair Summer Research Institute Library course has helped me to:

#	Answer	Count
1	Evaluate Websites	2
2	Conduct a Literature Review	3
3	Formulate a Research Question	2
4	Cite and Document Sources Appropriately	3
5	Select appropriate data sets in my discipline	2
6	Understand the Open Access environment	4
7	Create an Annotated Bibliography	4
10	Other	0



# RUTGERS

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Please select all that apply. The McNair Summer Research Institute Research Proposal course has helped me to:

#	Answer	Count
1	Evaluate Websites	8
2	Conduct a Literature Review	10
3	Formulate a Research Question	8
4	Cite and Document Sources Appropriately	9
5	Select appropriate data sets in my discipline	5
6	Understand the Open Access environment	10
7	Create an Annotated Bibliography	8
10	Other	0



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List a research skill from the McNair Summer Research Institute Library Course that you think has been most useful to you in your current academic pursuits.

Rutgers Database

Boolean tools

Finding papers in order to conduct a literature review

Open Access know how

Research using databases that Rutgers has



# RUTGERS

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**List a research skill from the McNair Summer Research Institute Research Proposal Course that you think has been most useful to you in your current academic pursuits.**

Conducting a literature review

Created bibliography and looking for relevant information from databases

Organizing information

The ability research journal articles

Narrowing down

Create an annotated bibliography

selecting the appropriate data set in my discipline and conducting a literature review and enhancing my skills in creating an annotated bibliography

Scientific writing

Using the correct databases and keywords to find relevant articles

understanding exactly what methodology is and being well versed in research terminology

Citing Sources



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List any other research skills that you still need to develop that you learned during the McNair Summer Research Institute Library course.

Developing Research Question

n/a

Developing a research question

None

**Reading skills**



# RUTGERS

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List any other research skills that you still need to develop that you learned during the McNair Summer Research Institute Research Proposal Course.

How to scientifically write a paper

writing research proposal

**Time management**

Open Access guidelines

**Consistency**

Conduct a literature review

I still need to advance my skills in formulating a research question

Formulating a research question

How to formulate a research question

Formulating a Research Question



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## List a research skill that you need now that was not covered in the McNair Summer Research Institute Library Course

n/a

Determining a useful paper

Understanding data and whether it is supported or not

Deciphering vague papers

Use of LaTeX, BibTex, EndNote, Mendeley, etc...

**Skimming skills**



# RUTGERS

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List a research skill that you need now that was not covered in the McNair Summer Research Institute Research Proposal Course

IRB

Scientific article critiquing

**Staying organized**

Different types of research methods

Using discipline-specific software

N/A

Organizing and Understanding Sources





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Having participated in the McNair Summer Research Institute Library Course, I feel more comfortable interacting with librarians:

#	Answer	Count
1	Not at all	0
2	A little	0
3	Neutral	1
4	Some	2
6	Very much	2
5	Comments:	0
	Total	5



# RUTGERS

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Having participated in the McNair Summer Research Institute Research Proposal Course, I feel more comfortable interacting with librarians:

#	Answer	Count
1	Not at all	0
2	A little	2
3	Neutral	2
4	Some	4
6	Very much	4
5	Comments:	0
	Total	12

## Post-Grad Questions: Fall 2017

Q11 Have you identified the subject librarian in your discipline at your current graduate program institution?

Yes

No

No, but I plan to.

Comment \_\_\_\_\_

Q12 Have you made contact with your subject librarian in your discipline at your current graduate program institution?

Yes

No

No, but I plan to

Comment \_\_\_\_\_

## Discussion

- From the range of IL skills that students are listing it appears that they are conversant with what they have learnt so metacognition is in process
- Some seem to be conflating study skills with IL skills
- retain IL skills gained in the library courses
  - While completing the undergraduate program
- are agile in adapting to new information tools, services, & systems (Grad survey)
- make & maintain connections with relevant subject librarians
  - as undergraduates (the majority of respondents feel more comfortable)
  - as graduates (Grad survey)

- make & maintain connections with relevant subject librarians
  - as undergraduates: 4/5 (2015) indicate an increase and 10/12 (2016) indicate an increase in comfort level
  - as graduates (Grad survey)

## Conclusion/Decision

- Continue with the course structure and content
  - More focus needed on how to formulate the research question
- Include
  - higher level research topics like IRB (ethics in research)
  - Citation Management systems

# Limitations

- Very small cohort of students at the onset
- Expected reduction in the size of the cohort (attrition)
- The IRB did not include the use of the research journals which would give good qualitative information

# Best Practices

- Don't have to wait for official program sponsor (AiA)
- Seek partnerships outside of the libraries that have already defined assessment metrics
- Identify a group of students that you will have at least 2 interactions with
- Define the assessment strategy to determine library impact
  - Align the learning outcomes, instructional tools/strategies, assessment/data collection
  - Possible IRB



# References

- Conway, K. 2011, 'How prepared are students for post-graduate study? A comparison of the Information Literacy skills of commencing undergraduate and post graduate Information Studies students at Curtin University', *Australian Academic & Research Libraries*, 42, 2, pp. 121-135, Library Literature & Information Science Full Text (H.W. Wilson), EBSCOhost, [Accessed 29 April 2015].
- Ringle, M. 2014. 'Redesigning library Instruction: A collaborative process'. *Indiana Libraries*, 33, 2, pp. 68-70, Library Literature & Information Science Full Text, EBSCOhost. [Accessed: April 29 2015].
- Shen, L. 2014, 'Information literacy (IL) intervention workshop has positive, but limited, effects on undergraduate students' IL skills', *Evidence Based Library And Information Practice*, 9, 2, p. 28-30, Scopus®, EBSCOhost, [Accessed: 29 April 2015].

# QUESTIONS?

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