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When One Size Doesn't Fit All: Analyzing Data for Diverse Student Populations

Session 3 of a 4-part Series
From Theory to Practice: Assessment and Evaluation for Study Abroad Programs
#LaunchIDEASabroad

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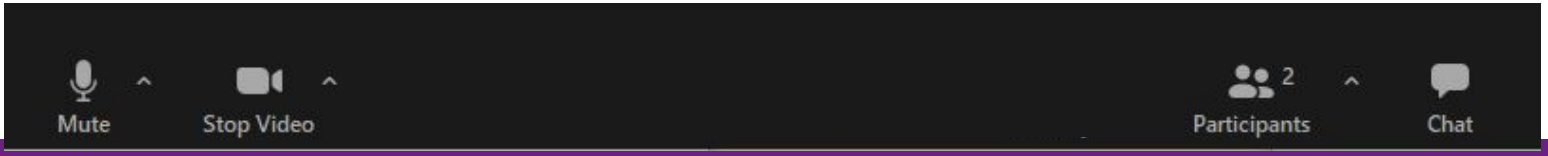
Chat



IDEAS Program

IDEAS
INCREASE & DIVERSIFY EDUCATION ABROAD FOR U.S. STUDENTS

A program of the U.S. Department of State Bureau of Educational and Cultural Affairs, USA Study Abroad branch

Seeking to expand higher education institutions' capacity to grow and diversify study abroad programs for U.S. students

- Increase number of all students studying abroad, especially those from underrepresented groups
- Increase the number of U.S. higher education institutions offering study abroad programs
- Expand study abroad to new overseas destinations, particularly those that are less common

Grant Competition

- Approximately 40 grants of up to $35,000

Capacity Building Initiatives

- Virtual and in-person, open to everyone

2022 IDEAS Grant Competition

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THE 2022
IDEAS PROGRAM
GRANT COMPETITION
IS NOW OPEN!

PHASE 1 DEADLINE: 2/20/22

USA Study Abroad

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Mission:

To advance U.S. foreign policy goals by increasing and diversifying U.S. study abroad through programs for both individuals and institutions and to support the next generation of diverse American leaders to gain the knowledge and skills they need to succeed in a globalizing world.

Rebecca Johnson

Program Officer
USA Study Abroad
U.S. Department of State

IDEAS Program 2021 Study Abroad Needs Assessment

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Today's Facilitators

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Professional and Graduate Education
Mount Holyoke College

Dr. Tiffany Espinosa

Executive Director
Lead Facilitator

Amy Asadoorian

Marketing & Communications
Monitoring the chat

Roberto Mugnani

Director of New Programs
Facilitator

Jill Cooney

Administrative Systems
Monitoring the chat

Goals and Agenda

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Today we will explore how to assess needs and design programming for unique subcategories of students.

1. Translate needs assessment data into program assessment
2. Investigate strategies for disaggregating data
3. Explore techniques for collecting data
4. Two tools for comparing sample group data
5. Interpreting data: are differences between groups significant?

Follow-up session to review and get feedback on your assessment plan. Try it and share your ideas with us on March 9, 2022

Serving diverse students

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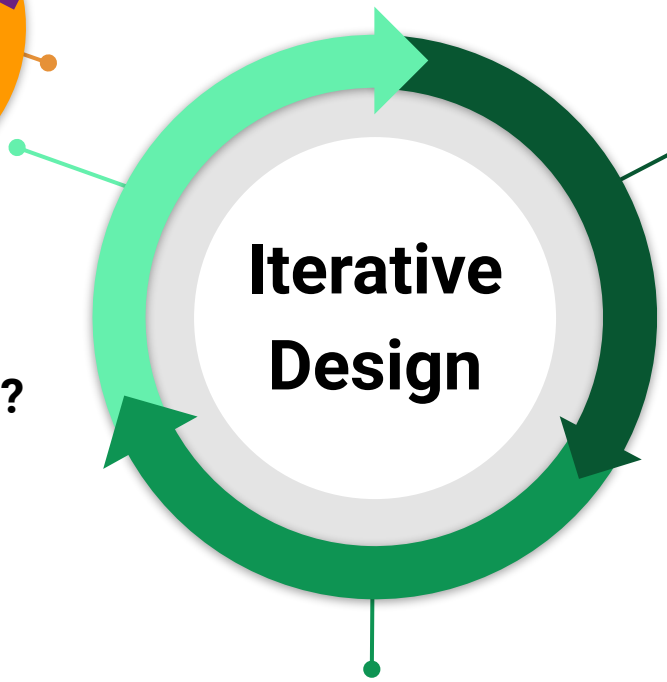
Evaluation for Success

Did our design work?

Were our assumptions valid?

What is still needed?



Needs Assessment

Gaps

Opportunities

Program Design

Theory of Change, Logic Model

Learning Outcomes

Universal Design? Differentiation?

Designing Better Programs

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Needs Assessment

- Formal and informal processes
- Direct input vs. secondary data
- Expressed vs. observed

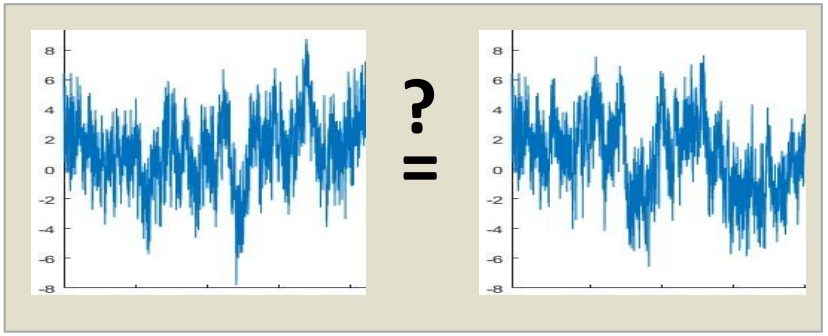
Effect on program design

- Choice of appropriate outcomes
- Identify appropriate indicators
  - What is the best measure?
- Develop supporting structures

Evaluating Success

- Good data collection
- Investigate differences by audience
- Are they significant, or noise?

Photo by Alex Radelich



Assessment Process

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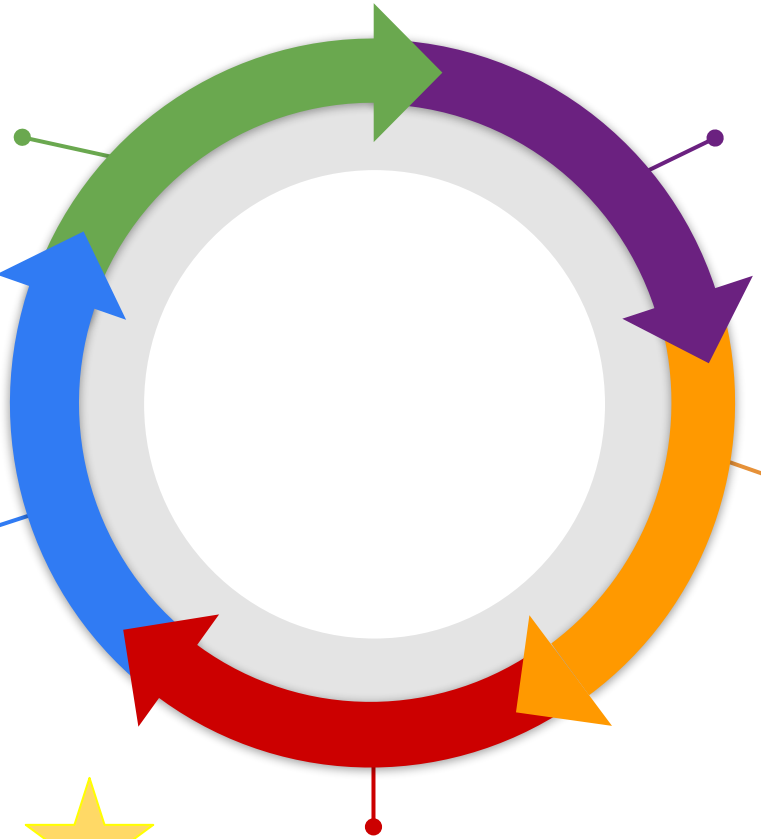
Articulate Goals and Objectives
Why is this important?
What do you hope to achieve?
Who cares and why do they care?
What are the implications?

Develop an Assessment Strategy
Goals
Logic Model
Assessment Methods
Criteria/Standards
Use of Information
Implementation Plan
Communications Plan

Collect Data & Evidence
Direct Measures: *Coursework, Capstone projects, Portfolios, Participation*
Indirect Measures: *Surveys, Interviews, Focus Groups*
Data that allows you to make inferences

Interpret the Data
Statistical analysis
Qualitative data analysis
Trends
Criteria for success
Context considerations
What does it mean?

Make Modifications
Identifying interventions
Implementation planning
Communication planning



Data collection tips

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Know what you want to investigate before collecting data

- It will make the process much, much easier
- Identify appropriate measures/indicators (use a logic model)

Confidential

- Ask questions (e.g., student number, name) that enable us to connect the survey responses to other data sets (e.g., student records or profile information).
- Only report data in the aggregate, and do not share personally identifiable information.

Anonymous

- The only information that you have is contained in the survey. You can't follow up or connect it to other data.

What do you want to know?

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Be clear about what you want to investigate:

- Cultural competencies
- Learning outcomes
- Satisfaction/Importance
- Student identity development
- Growth (e.g. comparing pre- and post-program scores)
- How important specific factors might be

Prioritize what you ask on surveys

Consider different ways to collect data beyond surveys

- Student Information System
- Artifacts
- Observed behaviors

Identify Traits of Interest

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- Area of study (social sciences, STEM, humanities)
- ADA protected students
- Athletes
- Clubs or leadership roles
- First generation students
- Gender
- LGBTQ+ students
- Nationality
- Online participants vs on-site participants
- Race/ethnicity

Or other criteria of interest/concern.

To disaggregate data, you need to be able to identify people as a part of a group!

Types of data

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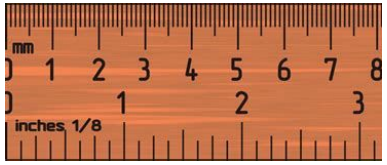
Categorical data

- Have you traveled abroad before?
- What foreign language(s) do you speak?
- Are you an athlete?
- Are you a freshman, sophomore, junior or senior?
- **Tool/Test:** Cross Tab and Pearson's chi-squared test

Continuous data



- How many hours did you study?
- How many years have you studied foreign languages?
- What did you score on a test (0-100%)?
- **Tool/Test:** Averages and independent t-test

Key Concepts

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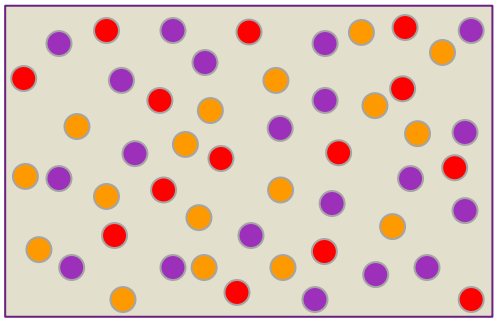
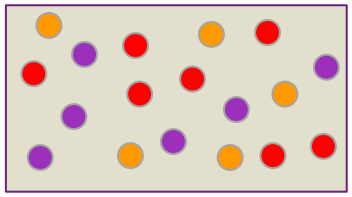
Random Samples



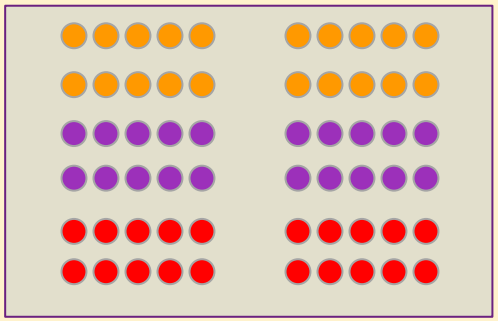
Population



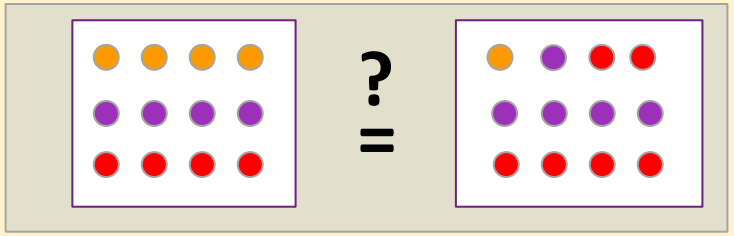
Sample

What is the probability of us getting this specific mix of observations if we were to randomly pick from the population?

Is it Different?



Population



Expected **Observed**

If the probability of getting this mix is 5% or less, we assume there is a significant difference between the groups.

Pearson's chi-squared test

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Categorical data

Example: 3 levels of competency, 3 sites

- Variability between what we observed vs expected
- Estimates probability based on the sample data we have

What we observed and expected are different, but is it significant?

Observed Frequencies

Cultural Competency	Study abroad destination			
	Denmark	France	China	Total
Excellent	9	10	7	26
Good	11	9	31	51
Poor	12	8	3	23
Total	32	27	41	100

Expected Frequencies

Cultural Competency	Study abroad destination		
	Denmark	France	China
Excellent	8.32	7.02	10.66
Good	16.32	13.77	20.91
Poor	7.36	6.21	9.43

Pearson's chi-squared test

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This test will tell us if these two groups have a statistically significant difference.

Categorical Data & Cross Tabs

=chitest(array 1, array 2)

array = group of data

If the result is smaller than .05, then we have ***sufficient evidence*** that the observations are significantly different than what we would have expected.

Here ***there is a statistically significant difference:*** students from different destinations demonstrate different levels of cultural competency.

Observed Frequencies

Cultural Competency	Study abroad destination			
	Denmark	France	China	Total
Excellent	9	10	7	26
Good	11	9	31	51
Poor	12	8	3	23
Total	32	27	41	100

Expected Frequencies

Cultural Competency	Study abroad destination		
	Denmark	France	China
Excellent	8.32	7.02	10.66
Good	16.32	13.77	20.91
Poor	7.36	6.21	9.43

Chi-Test Probability = 0.0009172334128

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Expected Frequency Calculations

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Categorical data & Cross Tabs

To calculate <u>expected frequencies</u> for each cell:

1. multiply the **Column Total** (e.g. Total "Denmark" B11+B12+B13) by the **Row Total** (e.g. Total "Excellent" B11+C11+D11)
2. divide by the **Overall Total** number of observations (= 100).

Example: Expected frequency of Students who went to **Denmark** and demonstrated **Excellent** Cultural Competency

Step 1. (32 x 26) = 832

Step 2. 832/100 = 8.32

	A	B	C	D	E
8	**Observed Frequencies**				
9	**Cultural Competency**	**Study abroad destination**			
10		Denmark	France	China	Total
11	Excellent	9	10	7	26
12	Good	11	9	31	51
13	Poor	12	8	3	23
14	Total	32	27	41	100
15–19	**Expected Frequencies**				
20	**Cultural Competency**	**Study abroad destination**			
21		Denmark	France	China	
22	Excellent	=(B14*E11/E14)	=(C11*E11/E14)	=(D11*E11/E14)	
23	Good	=(B14*E12/E14)	=(C11*E12/E14)	=(D11*E12/E14)	
24	Poor	=(B14*E13/E14)	=(C11*E13/E14)	=(D11*E13/E14)	
25					
26					
27	**Expected Frequencies**				
28	**Cultural Competency**	**Study abroad destination**			
29		Denmark	France	China	
30	Excellent	8.32	7.02	10.66	
31	Good	16.32	13.77	20.91	
32	Poor	7.36	6.21	9.43	
33					
34	The formula:	=chitest(B11:D13, B30:D32)			
35	Chi-Test Probability =	0.0009172334128			

Independent T-tests

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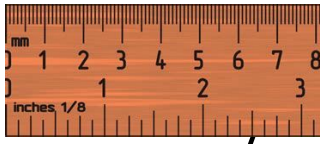
Continuous data



- Variability between groups / variability within groups
- A large ratio means it is likely to be statistically significant
- Estimates probability based on the sample data we have
- In Excel/Google Sheets you need equal sized sample groups.
- There is no minimum sample size, but the larger the size, the better

These averages are different, but is it significant?

Example: Average number of hours spent studying

Respondents	Legacy Students	First Gen Students
1	3	6
2	4	19
3	5	3
4	8	2
5	9	14
6	1	4
7	2	5
8	4	7
9	5	1
Average	4.56	6.78

Independent T-tests

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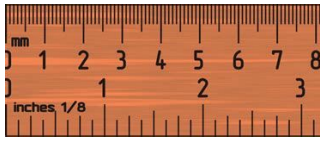
The t-test will tell us if these two groups have a statistically significant difference.

Continuous data



=T.TEST(array 1,array 2,tails,type)

array = group of data
tails = 2
type = 1

If the T-test probability is larger than .05, then we do not have **sufficient evidence** to say that the two populations are different.

Here, we conclude there is **not a statistically significant difference**.

	A	B	C
7	Example: Average number of hours spent studying		
8	Respondents	Legacy Students	First Gen Students
9	1	3	6
10	2	4	19
11	3	5	3
12	4	8	2
13	5	9	14
14	6	1	4
15	7	2	5
16	8	4	7
17	9	5	1
18	Average	4.56	6.78
19			
20	The formula:	=TTEST(B9:B17,C9:C17,2,1)	
21	Calculated probability =	0.3061593763	

Pre-flight Checklist

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- ❑ What are you curious about?
- ❑ What are the best measures?
- ❑ Can you identify traits of interest in your participants?
- ❑ Is your data collection confidential?
- ❑ Are there other data sources that can provide more information?
- ❑ What sort of data do you have (continuous or categorical?)
- ❑ What statistical test should you use? T-Test or Chi-square?

Next Steps: Now what?

- ❑ How will you interpret and share the results?
- ❑ How will the results help you develop programming in the future?

Hands on workshopping session: March 9, 2022, 3:00-4:30pm EST

From Theory to Practice: Assessment and Evaluation for Study Abroad Programs

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Upcoming Training Sessions

Incubator Session: When One Size Doesn't Fit All:
Analyzing Data for Diverse Student Populations
March 9, 2022, 3:00-4:30pm EST

Come share your assessment plans and discuss strategies and tactics for assessing needs, planning and disaggregating data for subcategories of students.

You will have the opportunity to share a plan-in-progress, and, work together to iterate your assessment design.

See how other institutions are approaching assessments, share insights, and consider opportunities and challenges in implementation.

StudyAbroadCapacityBuilding.org

IDEAS@worldlearning.org

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The IDEAS (Increase and Diversify Education Abroad for U.S. Students) Program, formerly known as the Capacity Building Program for U.S. Study Abroad, is a program of the U.S. Department of State with funding provided by the U.S. Government and supported in its implementation by World Learning.