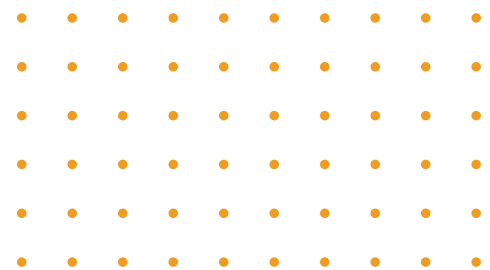




DEVELOPING A SURVEY TO STUDY THE IMPACT OF ✈️ GLOBAL UNDERGRADUATE EXPERIENCES ON ENGINEERS' CAREER PATHWAYS



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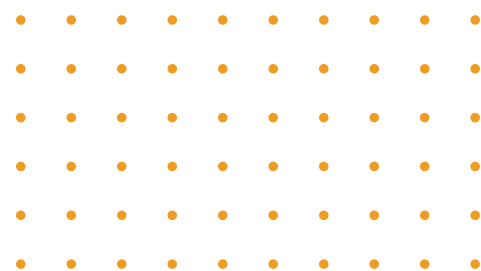
Start Slide ➔

✕ BACKGROUND

- Study abroad and global engineering programs have been posited to influence the development of intercultural learning of students.
- Little information exists on how these global programs affect the career outcomes of engineering graduates.

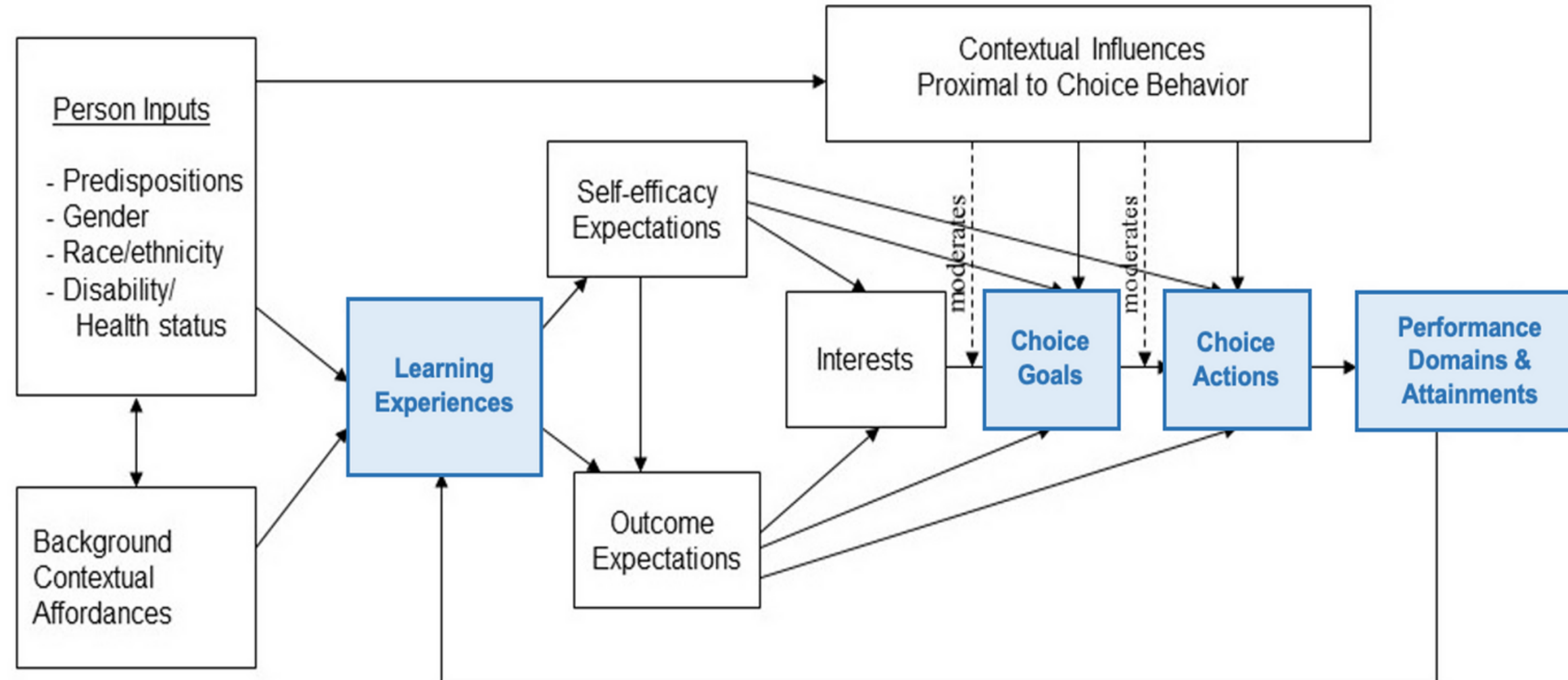
✕ PURPOSE

The purpose of this project is to explore the impact of global experiences during and after the undergraduate years on global career outcomes



× THEORETICAL FRAMEWORK

Social Cognitive Career Theory





PROJECT OUTCOMES

Choice Goals

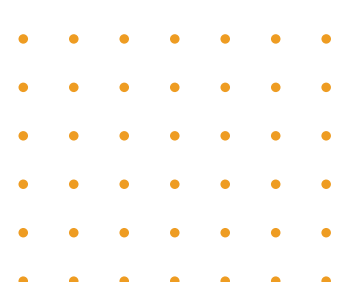
The intention or aspiration to pursue a particular activity (Global Self-Concept & Interests)

Choice Actions

The action of either achieving or abandoning that goal (Career Trajectories)

Performance domains and attainments

Goal fulfillment or skill development that occurs once a course of action has been taken (Global Competence & Activities)



✕ PROJECT OVERVIEW



A multiple-case study of three long-running global engineering programs to explore the impact of global undergraduate experiences on engineers' career pathways and approaches to engineering work.

Case 1

International Engineering Program

THE
UNIVERSITY
OF RHODE ISLAND

Alumni → Comp.

Case 2

International Co-op Program

University of
CINCINNATI

Alumni → Comp.

Case 3

Global Engineering Alliance
for Research & Education
(GEARE)

PURDUE
UNIVERSITY®

Alumni → Comp.

Phase 1:
Survey

Phase 2:
Interviews

Phase 3 Cross-Case Comparison: Develop case summaries based on Phase 1 and 2 data. Compare summaries holistically to determine which patterns are case-based and which are replicated across cases.

✕ ALUMNI SURVEYS

- Essential tools for program evaluation and informing key stakeholders of the impacts of their program.
- To develop a good survey, different stakeholders should review the instrument during development.
- It is helpful to build surveys using existing surveys and frameworks, which can strengthen the survey and minimize survey instrument problems .

PEARS

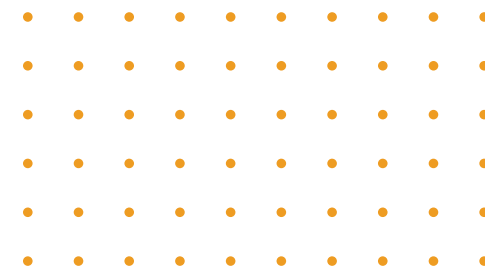
Pathways of Engineering Alumni
Research Survey

✕ SURVEY

Phase 1

In Phase 1, we have developed and administered a survey about career trajectories, global experiences during and after college and global career outcomes.

Survey Design



✕ SURVEY

1

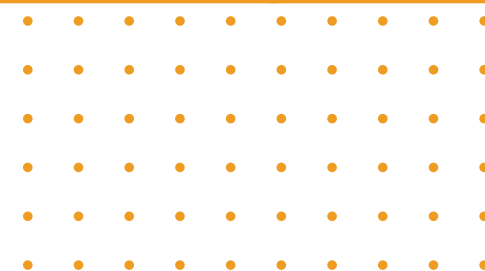


Initial Survey Development

Survey Components



Survey Section	Source of Questions
Career Trajectories	• Adapt from PEARS
Global Experiences	• Adapt from Davis (2023) • Adapt from PEARS
Global Self-Concept & Interests	• Adapt from PEARS
Global Competence & Activities	• Cultural Intelligence Survey (Ang et al., 2007) GEC Scale (Mazzurco et al., 2020) • Adapt from PEARS & GEC theoretical framework



✕ SURVEY

2



Advisory Board Feedback

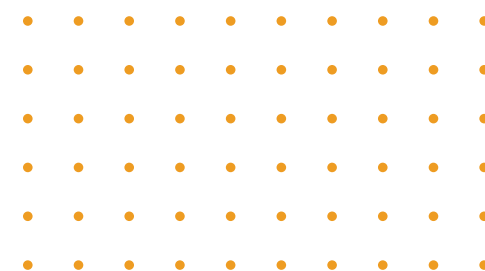


Advisory Board

Research Advisory Board

Industrial Advisory Board

- Insights resulting in the reorganization of the survey into five sections .
- Addition of questions measuring the impacts of global experiences in comparison to other experiences.
- Addition and refinement of targeted questions to help address our project research questions .



× SURVEY

3



Think Aloud Interviews

- ① We conducted three one-hour interview sessions.
- ② Participants asked to “think” out loud as they read the instructions and answered each question on the survey.
- ③ Changes made mostly with rephrasing questions to ensure readability and ease of response.

Before

What was the least valuable aspect
of the global educational
program(s) you participated in?

After

Based on your professional experiences
so far, what would you change about
the global educational program(s) you
participated in?

✕ SURVEY



GEARE
GLOBAL ENGINEERING ALLIANCE
FOR RESEARCH & EDUCATION

PURDUE
ENGINEERING

4



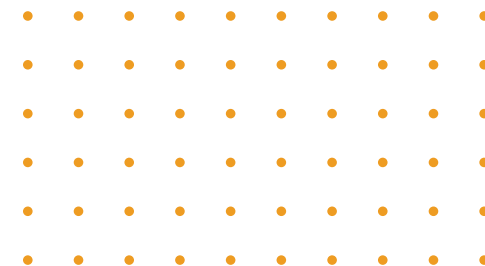
Time Tests

1

Degrees and
employment

1

Undergraduate
experiences



× SURVEY

5

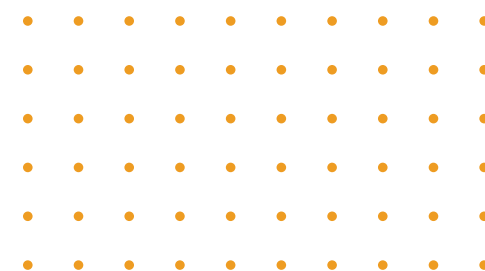


Large Scale Survey Pilot



“The amount of time to take the survey was a barrier to completing it...”

- Analyzed the survey responses for sections where participants took the longest to complete or stopped responding.
- Reviewed questions in these sections for relevance.
- Eliminated those that seemed less significant to the study.
- Adjusted completion time.



✕ SURVEY

5

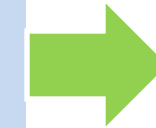


Large Scale Survey
Pilot

Pilot Survey Results



Global job task performance



Global Engineering Competency
(GEC)

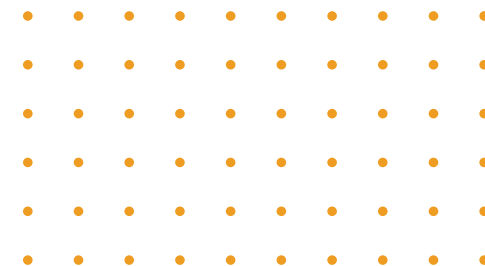
$R^2 = .150, F(1, 29) = 5.120, p = .031$

Global job task performance



Cultural Intelligence Scale (CQS)

$R^2 = .016, F(1, 29) = 0.481, p = .494$



✕ SURVEY

5



Large Scale Survey Pilot

Pilot Survey Results



“I gained confidence in communicating with multicultural team members and clients, overcoming challenges while traveling abroad, and improved my overall perspective on working with multicultural teams.”

“My global experience introduced me to many amazing people. I had a strong support network the following year because of it. One connection I made encouraged me to join my engineering honor society, which opened the door to my first opportunity after college “

“Seeing how civil engineering was done in Ecuador led me directly to being a civil engineer rather than something else because it exposed me to a different way of thinking about how we interact with the environment as people and being engineers.”

✕ CONCLUSION

1

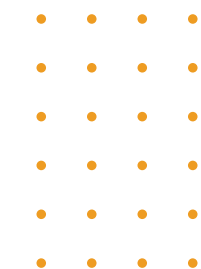
Insights for developing programs to equip engineers with competencies relevant to the global engineering workplace.

2

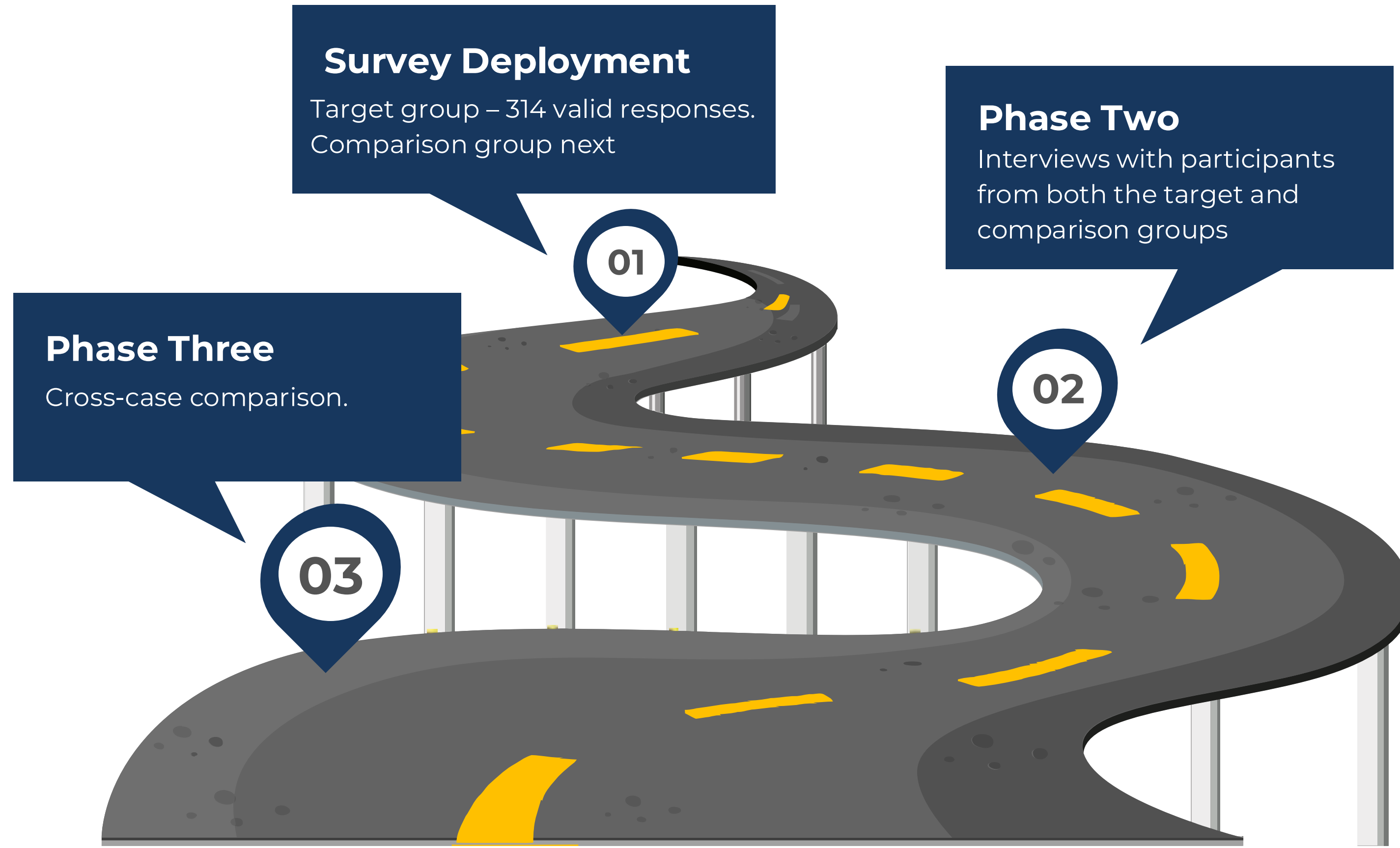
Foundation for future research endeavors aiming to assess long-term impacts of global educational experiences .

3

Educational institutions, global programs and policymakers as they design and promote global programs.



✕ FUTURE WORK



✖ DISCLAIMER



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THANK *You*

FOR YOUR ATTENTION



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