Global Multi-Institution Mentoring Program

Based on Discussions at SEAIP 2017

And further, in-depth discussions between

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Vision and Mission Statements

- Vision: We are creating global-minded problem solvers for the 21st century workforce.

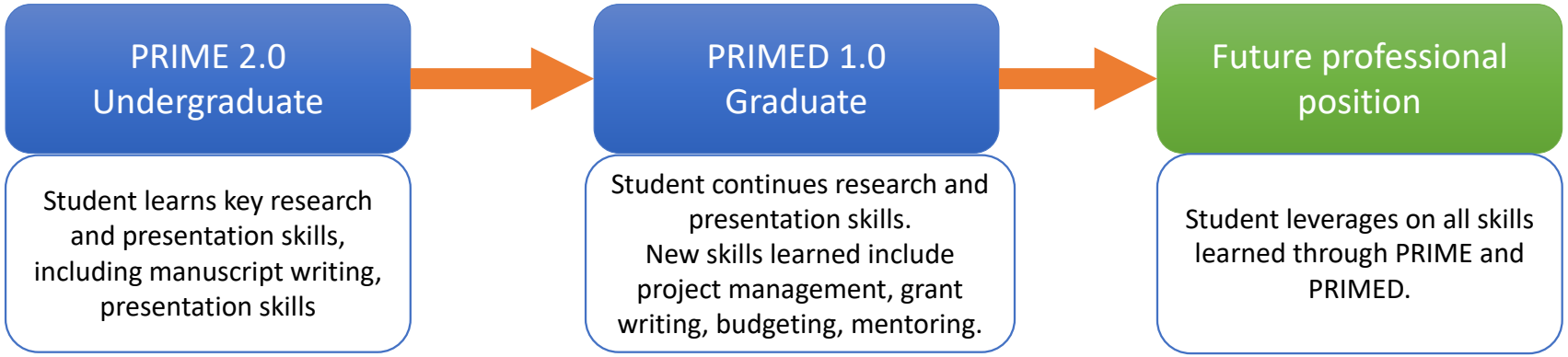
- Mission: Starting from an international perspective, we are inspiring students to become research leaders for a collaborative, multidisciplinary, and multi-cultural world through a program that rethinks graduate education boundaries and includes socially aware, business savvy, technically strong dimensions.

Global Mentoring Group

- How can we leverage on our longstanding PRAGMA **community and experience** with students to:
  - Create a multi-institutional mentoring setting and shared framework
  - Provide hands-on experiences in research, professional development and cultural awareness to train students
  - Enhance the PRAGMA student experience through a program that adds to student experiential learning
    - Research mobility
- The **goals** of this group are:
  - Transform the career potential for students involved PRAGMA
  - Change/create more opportunities at participating institutions
  - Create a mentor network to teach/support skills to host mentors
  - Facilitate the development of leaders in interdisciplinary research

Training Future Professionals

- Scenario: An undergraduate student joined PRIME and became very interested in the project. The student continued to work with mentors in PRAGMA through graduate school and beyond.
  - What would the student gain?
  - What is the benefit to the mentors/institutions?



Students: New Ideas, Energy, and Strengthening of PRAGMA

Students infuse PRAGMA with new ideas and energy, improve organizational practice, create/sustain collaborations
Enhance and accelerate the development of talent: technically strong, culturally aware, globally engaged

PRIME: Undergrad

Current Program

- Created/tested Model for Experiential Learning
  - 6 month program for research, cultural, and professional development
  - Students are from single institution (UCSD)
- Research and Professional Accomplishments
  - 12 years, 200 students, 47% female; still in contact
  - Of 103 respondents to recent PRIME survey, 81 have or are gaining higher degrees
  - 28 research publications, 6 software components, 5 experiential papers - by students
- Strengthened, broaden collaborations in PRAGMA

Future Program

- Expand/enhance the PRIME program
  - Focus on PRAGMA projects
  - Lengthen term of projects
  - Involve multiple US sites (teams)
  - Add Professional Components
    - Formalize process of presenting research results upon return (e.g. publication writing, poster creation, presentation skills, etc.)
    - Provide support/framework for PRIME students to mentor next cohort
    - Expand alumni engagement e.g. alumni from 5 years ago return to speak about PRIME impact on career

PRAGMA Students: Grad

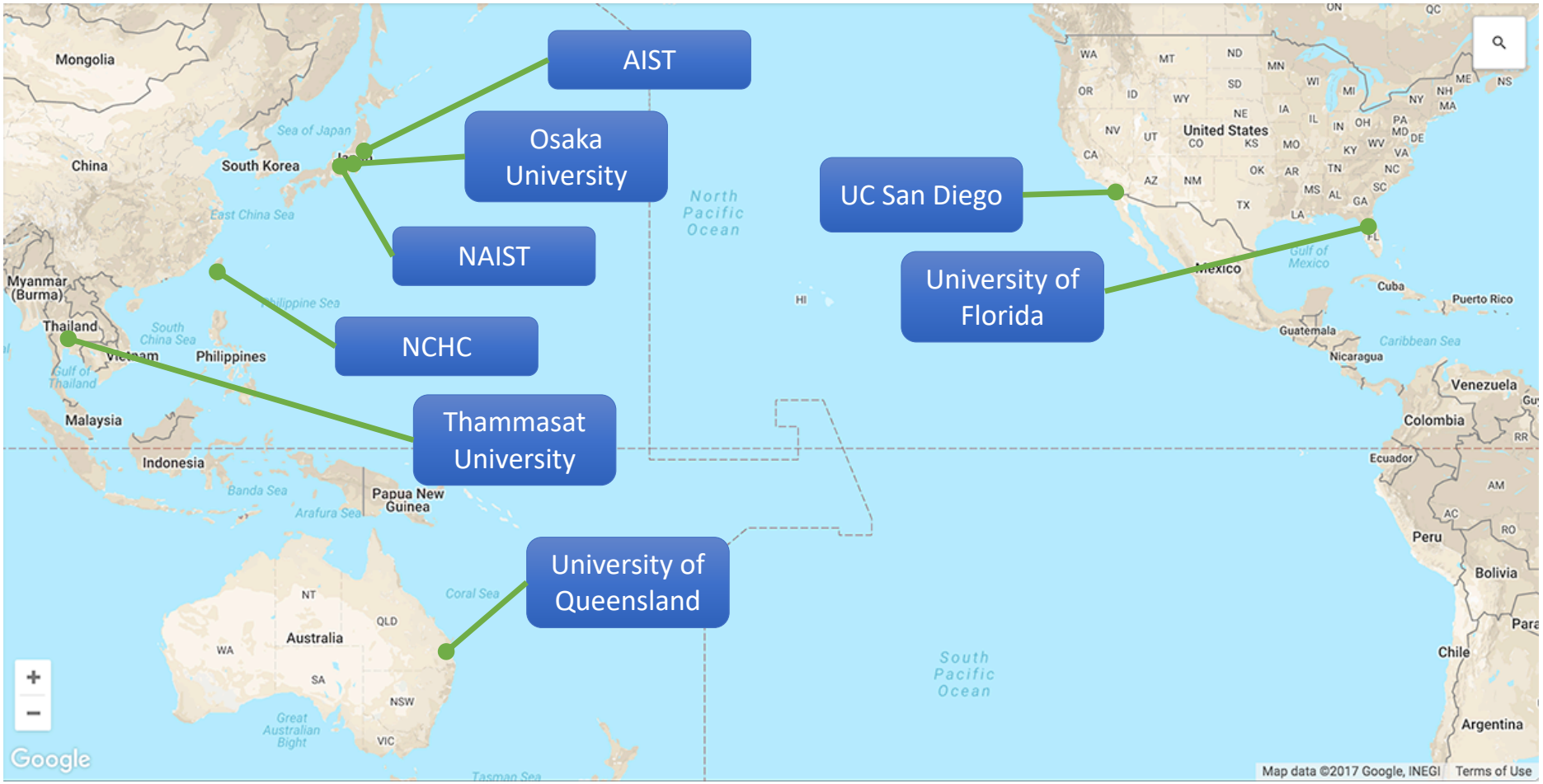
Current Program

- Modified PRAGMA's Practices
  - Currently, no formal program, but continuous engagement of students to organize poster sessions, lightening talks, workshops
  - Communicated with Steering Committee Members to accomplish activities or self-started by students
  - Students are from multiple institutions
- Research and Professional Accomplishments
  - 5 years, (?) students
  - Leadership (how many have gone on to leadership positions or higher degrees?)
  - 35 publications
  - 6 short-term research visits
- Experiments by, with and for students: Hackathons

Future Program

- Create a formal graduate PRIME program (PRIMED)
  - Continue practices that engage students
  - Amplify exchanges by aligning project with dissertation research
  - Formalize process of research exchanges
  - Add Professional Components
    - Provide training for project management skills (e.g. budgets, managing staff, grant writing, overall project goals, etc.)
    - Develop and implement framework for PRIMED students to mentor undergraduates in PRIME
    - Engage postdoctoral fellow to provide support for PRIMED students (e.g. mentoring the mentors)
  - Prepare students to be leaders in interdisciplinary research

Current Partners (Evolving Map)



Learning Objectives

Students

- Research problem solving in teams
  - Project management
  - Business potential and technology-transfer opportunities
  - Social implications of work

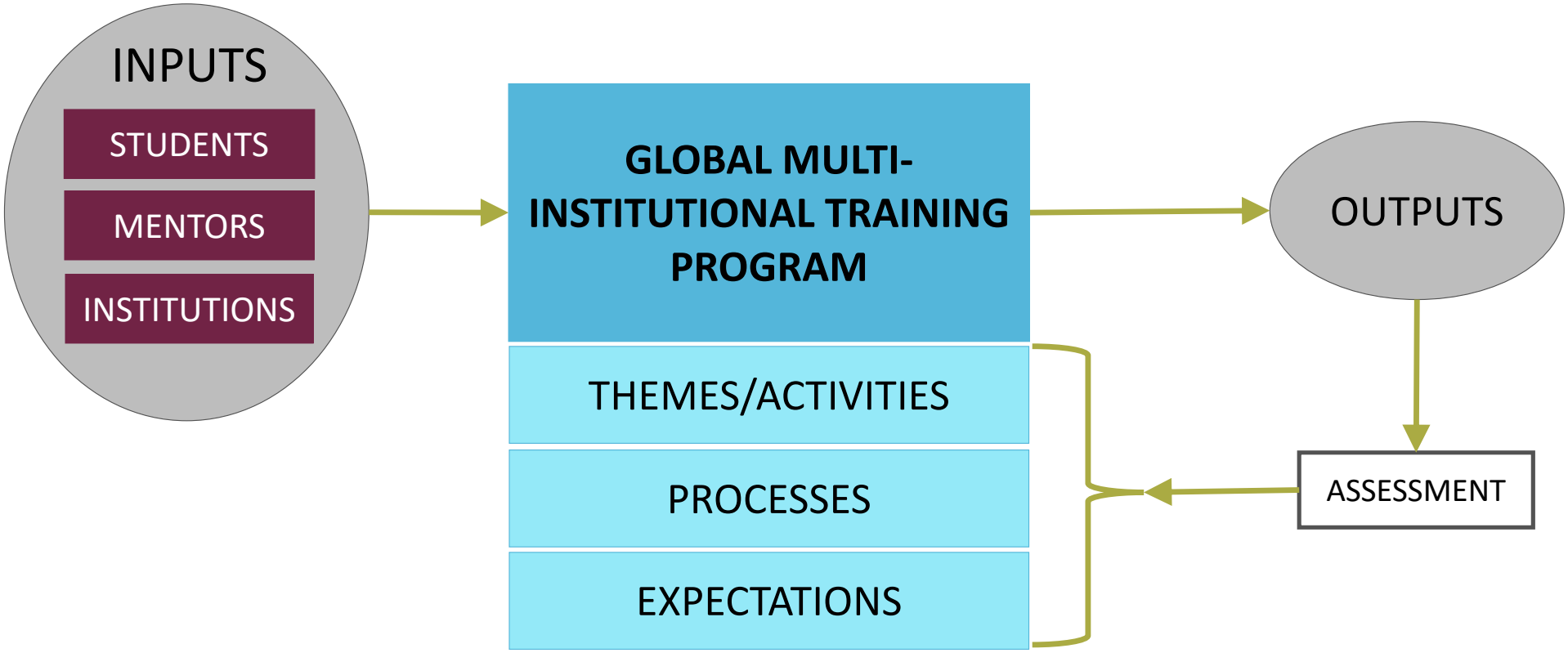
Other?

Mentors

- Managing projects and resources
  - Project goals/objectives
  - Provide direction
  - Inform future goals of student

High-level Overview

Share Experiential Training Framework of Program



Inputs

- Students
  - Undergraduate or graduate
- Mentors
  - Graduate students, postdoctoral fellows, professors, or researchers
- Institutions
  - University or research institutes
  - Different experiences for student

Themes/Activities - Students

Interdisciplinary research

- Offer research opportunities to undergraduates
  - Present previous research projects in a seminar class
  - Announce research opportunities and application process at information session
  - Applications submitted, reviewed, and interviews held
- Undergraduates participate in research
  - Training for students before performing research
  - Students perform research at host institution
  - Students present research in seminar class and at a mini research conference

Cultural competency

- Students participate in introductory classes of country of interest
  - Introduction to the different counties and cultures
  - Basic language courses for country of interest
- Students depart to country of interest
  - Pre-departure cultural workshop
  - Guided cultural development with weekly critical incident discussions
  - Post-experience cultural workshop

Professional development

- Provide training, leadership development opportunities for students
  - Scientific writing/presentation course
  - Seminar course highlighting research projects
  - Student organized research symposium

Business/social impact

- Students participate in seminars
  - Business knowledge seminar? (software licensing, commercialization tips, industry viewpoint)
  - “Ethics” seminar? (data privacy and use, AI use, automated car choices)

Themes/Activities - Mentors

Interdisciplinary research

- Offer research opportunities to undergraduates
  - Create project descriptions with desired qualifications
  - Properly scope the project and goals
  - Training for students before performing research
  - Meet weekly with students
- Expand/maintain research collaborations
  - Student internships can be used to move a project forward or start a new collaboration

Cultural competency

- Support faculty and staff intercultural learning
  - Create and execute workshop for mentors
  - Annual retreat/field trip
- Increase host mentor participation in cultural development
  - Seek international partners at host institutions for cultural programs

Professional development

- Provide training, leadership development opportunities for mentors
  - Create a workshop "How to be an effective mentor"
  - Travel for first-time mentors to host site
- Logistics for the student stay
  - Find housing, input for budget

Business/social impact

- Mentors participate in seminars
  - Business knowledge seminar
    - software licensing, commercialization tips, industry viewpoint
  - “Ethics” seminar
    - data privacy and use, AI use, automated car logic

Themes/Activities - Institutions

Interdisciplinary research

- Expand and develop research partnerships
  - Deepen and expand local relationships with faculty members
  - Identify research areas and align projects across international partners
  - identify areas that are in need of new technologies to facilitate research objectives
- Offer research opportunities to undergraduates
  - Create joint "flyer" of opportunities
  - Create shared website
  - Knowing “limits” at receiving sites
  - Knowing timeframe for students to come and go – perhaps to have students with overlapping interests
  - Create selection eligibility across institutions
  - Articulate (if possible) shared principles for “admission” to program and expectation of students
- Joint student selection
  - Can it be done?
  - Will choice of student be decided (solely) by local groups of senders, in conjunction with host mentors, or with a larger group?
  - Does the decision depend on funding (who has it)?

Cultural competency

- Investigate local impact of visiting students
  - Survey?

Professional development

- Evidence of participation/legitimacy of program
  - Creation of program certificate for students and mentors
  - Align with an industry partner (examples: Google Education, Microsoft Certified Educator, UCSD Extension, others)

Business/social impact

- Establish contact with other departments/divisions to support the program
  - Language
  - Asian studies
  - Business school
  - Ethics department

Processes

- Pre-Select
  - Advertise and Recruit*
  - Application process
  - Selection*
- Preparation at Home Site
  - Logistics
  - Research
  - Culture*
  - Professional*
- Mobility Experience (Host Site)
  - Project execution and monitoring
  - Project summary and review*
- Post Mobility Experience
  - Sharing experience/debriefing
  - Continued research
  - Review logistics*
  - Conduct program assessment*
- Mentoring Mentors*
- Seminars*
  - Business knowledge seminar?
    - Software licensing
    - Commercial potential
    - Industry viewpoint
  - “Ethics” in data privacy and use, AI use, automated car choices seminar?

* Opportunities or Needs for Coordination and/or Sharing Information and Experiences

Expectations

- Students
  - 3.0 GPA, maturity, initiative
  - two students at any site for US undergraduates
  - Common selection criteria and student experience
  - Dual mentors
- Mentors
  - Meet weekly (or more) with students
  - guide students with other mentor
  - pre-internship training
  - Host mentors to assist in finding housing; input for budget; project conceptualization
- Institutions
  - Create shared materials and experiences for students/mentors
  - Assess resource (time, space, etc) limitations at host sites

Outputs

- Tangible for Students and Participants
  - Publications
  - Software Components
- Tangible for Program
  - Assessment
  - Improvements in mentoring
  - Paper about experience (model for other programs)
- Tangible for Mentors
  - Mentor network to teach/support skills for host mentors

- Intangible or Less Tangible for Students
  - Skills
  - Networks of researchers
- Less Tangible for Mentors and Institutions
  - Stronger collaboration connection
  - Access to resources
  - Network of potential job/academic talent

Assessment of Outcomes

We need to define success!

- For Prototype
  - Processes – are there ways to improve (make more efficient and more effective)
  - Processes – how can we scale to more sites, more students
- For Program
  - Short-term (one year) – focus on student outputs
    - Research and Professional Development: Paper, software, presentation at PRAGMA or other public forum by student
    - Cultural: IDI
  - Medium-term (three to four years) – add mentors
  - Long-term (eight or more years) - add institutions

Future Directions

- Continue to refine various bullet points
- Seek funding sources
- Welcome more community input