

Engaging Undergraduates in Research

AFFINITY RESEARCH GROUPS

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INTRODUCTIONS



Name

Title

Institution

One interesting thing

OBJECTIVES

- To become aware of the key components of an ARG
- To engage in ARG activities that develop research skills
- To reflect on how one can introduce ARG practices into a research group

AGENDA

10:30 – 12:00	ARG Philosophy and Goals
12:00 – 1:00	Lunch
1:00 – 2:30	Essential Components of an ARG
2:30 – 3:00	Break
3:00 – 5:00	Affinity Research Groups in Practice

PART I: ARG PHILOSOPHY AND GOALS

UNDERGRADUATES AND RESEARCH: BENEFITS AND CHALLENGES

BRAINSTORMING

- Each group member, in turn, contributes or passes.
- The recorder writes down each contribution on a flip chart.
- Brainstorming ends when each person passes.
- You will have two questions (Time: 6 minutes).

Guidelines

No discussion during brainstorming.
Every idea is a good idea.
Scaffolding is encouraged.

ROLE ASSIGNMENTS

- Direction giver
- Recorder
- Timekeeper

BRAINSTORMING

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BRAINSTORMING QUESTIONS-1

- What are the benefits of involving undergraduate students in research?
- What are the challenges in creating research groups that include undergraduate students with diverse backgrounds and abilities?

Time: 6 minutes

DISCUSSION PROCEDURE

- Discuss and prioritize ideas.
- Recorder shares top ideas with large group.

Time: 6 minutes

BENEFITS: INVOLVING UNDERGRADUATES IN RESEARCH

Students will:

- Increase chances of attending graduate school
- Attain a higher level competence in STEM
- Understand the methods and process of research
- Learn how to communicate and work in teams
- Learn how to make informed judgments about technical matters



ATTRIBUTES OF A DESIRABLE EMPLOYEE (DEPT. OF LABOR)

- Ability to learn and apply new concepts
- Listening and oral communication skills
- Competence in communication skills
- Adaptability
- Creative-thinking and problem-solving skills
- Personal management, goal setting, motivation
- Effective team and interpersonal skills
- Organization effectiveness and leadership skills

CHALLENGES : WHAT WE LEARNED FROM EVALUATION

- Lack of domain expertise
- Lack of time to invest in research
- Lack of confidence
- Inability to commit continuously to tasks
- Inability to set clear goals



BRAINSTORMING QUESTION-2

Faculty:

- What strategies or techniques do you use to address the challenges?

Students:

- What techniques do you use to improve your research skills?

Time Limit: 5 minutes

BRAINSTORMING QUESTION-2

- Faculty:
What strategies or techniques can address the challenges?
- Students:
What techniques do you use to improve your research skills?

Time: 5 minutes

Challenges

- Lack of domain expertise
- Lack of time to invest in research
- Lack of confidence
- Inability to commit continuously to tasks
- Inability to set clear goals

SOCIAL SKILL: PARAPHRASING

What does “paraphrasing” mean?

Time Limit: 1 minute

IDEA SHARING

- Privately select your top ideas from the list.
- A person shares one top idea (not already shared with the group) and explains reasoning.
- The person to their right paraphrases what the person just shared.
- Repeat until everyone has contributed.
- A person will be selected randomly to summarize the group's ideas and reasoning.

REFLECTION

What were the differences in the two activities?

What did you learn from paraphrasing?

What was the purpose of assigning roles?

How could you use these techniques in a research group?

WRITE A NOTE

1. Name one thing that you learned today.
2. Name two things you value about undergraduate research experiences.

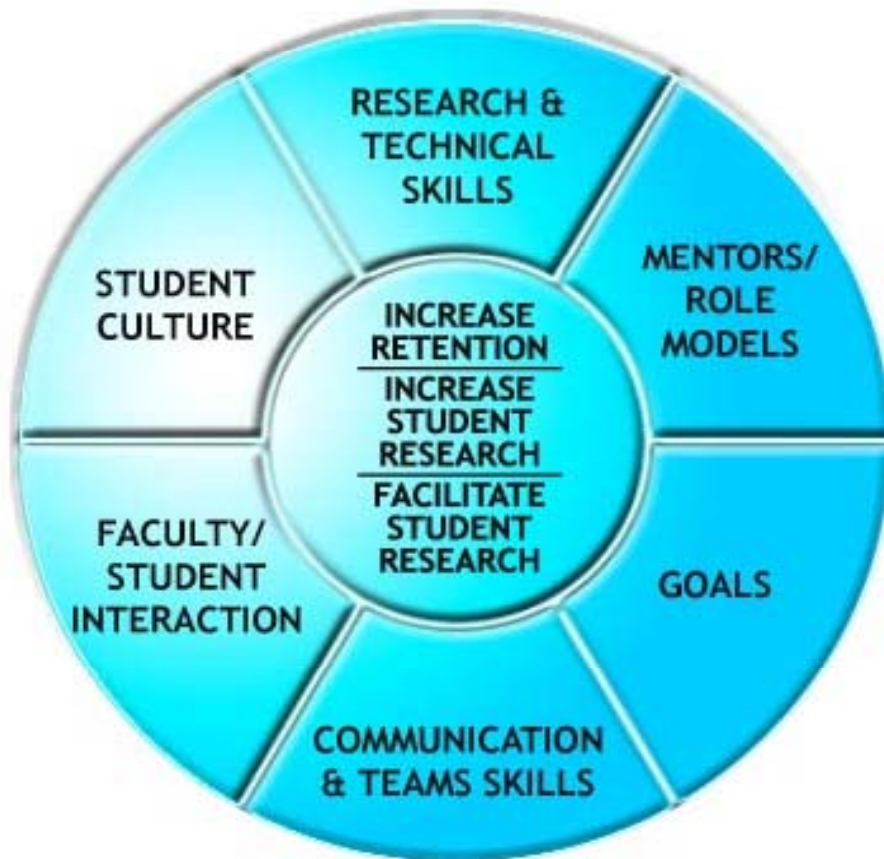


Turn to your team mates and say “Thank you!”

PART I-2: ARG PHILOSOPHY AND GOALS

OVERVIEW OF THE ARG MODEL

AFFINITY RESEARCH GROUP MODEL



- Integral model
- Cooperative group interaction
- Deliberate and intentional development of skills
- Support structure
- Best practices

Expand participation by recruiting students who may not normally be involved in research

ESSENTIAL COMPONENTS

Core Ideology

Student Connectedness

Deliberate practice

- Research skills

- Communication skills

- Team skills

INITIAL STEPS

- Define core ideology
- Structure effective teams

CORE IDEOLOGY

Core Values:

Set of three to six simply stated principles that guide the group's actions.

Core Purpose:

Reason for the group's existence

DEFINE CORE VALUES

- What values are essential in your group?
- What principles drive your decision making?

- Some examples
 - Community is the manifestation of an environment built on trust, support, and mutual respect.
 - Balance secures sustainability.
 - Positive Workplace: Setting an Environment Where Employees Feel Comfortable and Have the Ability to Learn and Grow.

Good examples?

DEFINE CORE PURPOSE

(Collins and Porras, 1994)

- Why your group exists (beyond simply “to reach project goals”)
- It guides and inspires **ALL** group members
- Remains relatively fixed over time
- Endures over the lives of many projects
- Must be independent of
 - Current environment
 - Current management fads
 - Competitive requirements

How does this transfer to research groups?

EXAMPLES OF CORE PURPOSE

Walt Disney

To make people happy.

WalMart

To give ordinary folk to buy the same things as rich people.

Mary Kay

To give unlimited opportunity to women.

Hewlett Packard

To make technical contributions for the advancement and welfare of humanity.

DISCUSSION

Do you agree that core values and core purpose are an essential component of defining an ARG?

Why or why not?

DEFINING CORE PURPOSE

Why you do what you do

- Start with general statement of what you do
- Ask why this is important several times
- How do you know when you're done? Ask--
 - Is it authentic?
 - Does the ideology it represents characterize the group's culture?
 - Do all group leaders believe it?
 - Do your actions align with the ideology?
 - Does the ideology guide decision-making?

CORE VALUES OF AN ARG

Student Success: An ARG values the deliberate development of skills in each student to ensure their success.

Cooperation: An ARG values cooperation in all interactions, including mutual respect of opinions and ideas of all members, promotive interaction, positive interdependence, and individual accountability.

Excellence: An ARG values excellence and strives to achieve it in all its actions.

EXAMPLE CORE PURPOSE

To develop students with diverse backgrounds by involving them in research that contributes to society

LUNCH BREAK
12:00-1:00



COOPERATIVE TEAM SKILLS

IMPORTANCE OF TEAM SKILLS

Why do we teach team skills?

(Doesn't everyone already know how to work in teams?)

Why do we practice team skills?

(Doesn't everyone already do this?)

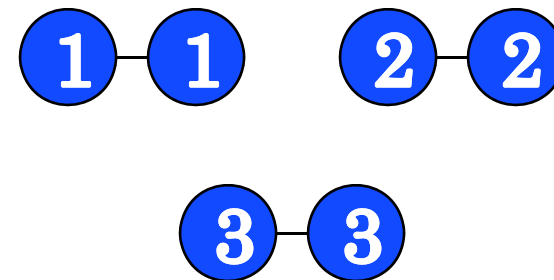
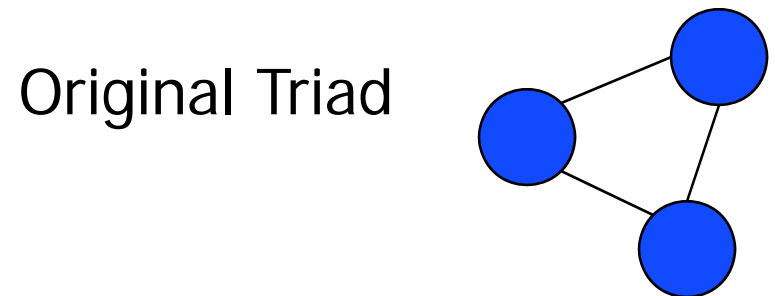
COOPERATIVE GROUP SKILLS

Basic Elements

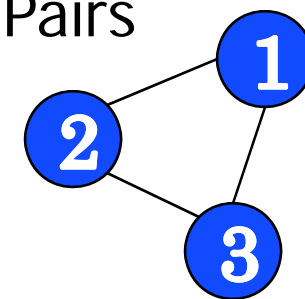
- Structure positive interdependence
- Promote participation and interaction
- Teach social skills
- Ensure individual accountability
- Reflect on how well or poorly the group performs

TASK (JIGSAW)

- Break into groups of three and randomly assign a number 1-3.
- Group individuals assigned the same number and together:
 - learn the assigned material
 - plan how to teach the material to the other members of your group
- Come back to your group prepared to:
 - teach material to the other members of your group
 - learn the material being taught by the other members



Preparation Pairs



Teaching/Learning in Triads

STRATEGY FOR PRESENTATION: VAM

Visual

Active

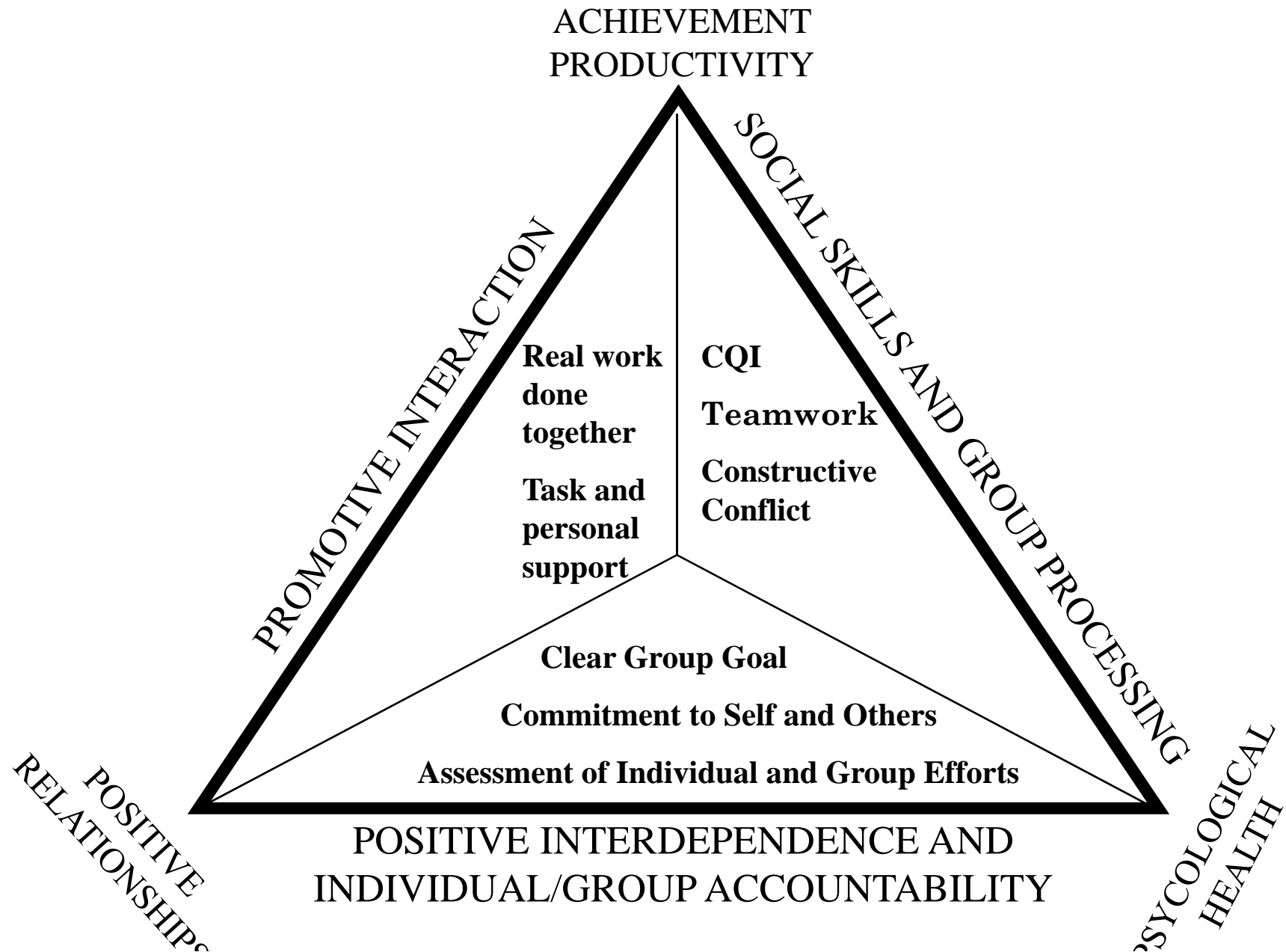
Memorable

Time Limit: 25 minutes

PRESENTATION TO ORIGINAL GROUP

Time Limit: 15 minutes

COOPERATIVE TEAMS (Johnson & Johnson 1988)





BREAK

PART II: ESSENTIAL ELEMENTS OF AN ARG

ESSENTIAL ELEMENTS



- Orientation
- Research project framework
- Defined deliverables
- Weekly meetings
- Monthly meetings

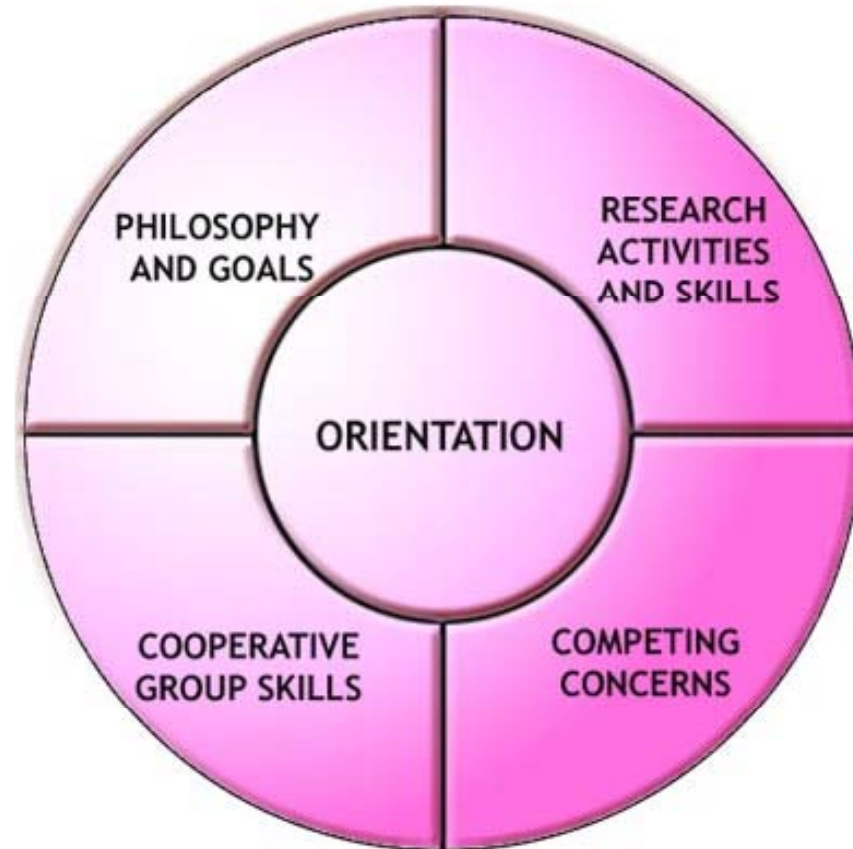
ORIENTATION

Purpose:

- Facilitate assimilation of new students
- Increase ownership of model

Benefits:

- Understand basic group/research skills
- Reevaluate model



RESEARCH PROJECT FRAMEWORK

Provide a framework for realizing
relevance of assignments

Description

- Define mission and goals
- Map tasks to goals
- Define activities and timeline
- Promote project and time management

Benefits

- Understand importance of work
- Understand steps toward completing tasks
- Facilitate setting goals and balancing time

DEFINED DELIVERABLES

Define milestones and deliverables for the project

Description

- Associate deliverable with assigned task
- Provide constructive criticism of deliverable
- Examples: presentation, critical review, summary, literature review

Benefits

- Develop domain expertise
- Hone technical and communication skills
- Contribute tangibly to project
- Structure accountability

SMALL-GROUP MEETINGS

Refine weekly/monthly/semester goals,
solve problems, and discuss research

Description

- Structured meetings
- Status and problem reporting
- Discussion/presentations
- Teach concepts
- Constructive criticism

Benefits

- Structure accountability
- Practice group and communication skills
- Develop domain expertise
- Evaluate goals, tasks, and methodology

LARGE-GROUP MEETINGS

Integrate research results and
develop higher-level thinking skills

Description

- Recognize students
- Inform group of research
- Teach and practice higher-level skills

Benefits

- Foster cooperation
- Transfer results
- Develop domain expertise
- Practice skills

CODE OF CONDUCT

Purpose: Promote more productive and constructive team work.

Benefits: Team work is more productive and constructive.

AN AFFECTIVE CODE OF COOPERATION (Smith 2004)

- Help each other be right, not wrong.
- Look for ways to make new ideas work, not for reasons they won't.
- If in doubt, check it out. Don't make assumptions.
- Help each other win and take pride in each other's victories.
- Speak positively about each other and your organization at every opportunity.
- Maintain a positive mental attitude.
- Act with initiative and courage as if it all depends on you.
- Do everything with enthusiasm.
- Don't lose faith.
- Have fun!



AFFINITY GROUPS IN PRACTICE

ACTIVITY

In groups of two:

1. Define the essential components of a research proposal.
2. Create criteria to critique a research proposal.
(What is the purpose of a critique?)

Time: 10 minutes

ACTIVITY

Steps

1. Using Chapter 6 of the ARG Handbook, identify an ARG activity that would be useful for your research team.
2. Be able to explain:
 - How the activity can benefit your research group
 - How the activity connects to the ARG model essential elements



STUDENT VOICES

ESSENTIAL COMPONENTS OF AN ARG- REVISTED

Core ideology

Student connectedness

Deliberate practice of research, communication, and cooperative team skills

- Structure positive interdependence
- Practice promotive interaction
- Learning and practicing interpersonal and group skills
- Ensure individual accountability
- Reflect on how well or poorly the group performs

ACTIVITY

Steps

1. Refer to the “Essential Components of an ARG” handout.
2. For three of the quotes assigned to your group, identify which essential component(s) is present.
3. Report-out to group.

10 minutes

REFLECTION

Identify where essential components of an ARG were embedded in workshop activities.

ADOPTING THE ARG MODEL

Handbook

Discussion of interest in ARG

Support needed to adopt the model

STRATEGIES

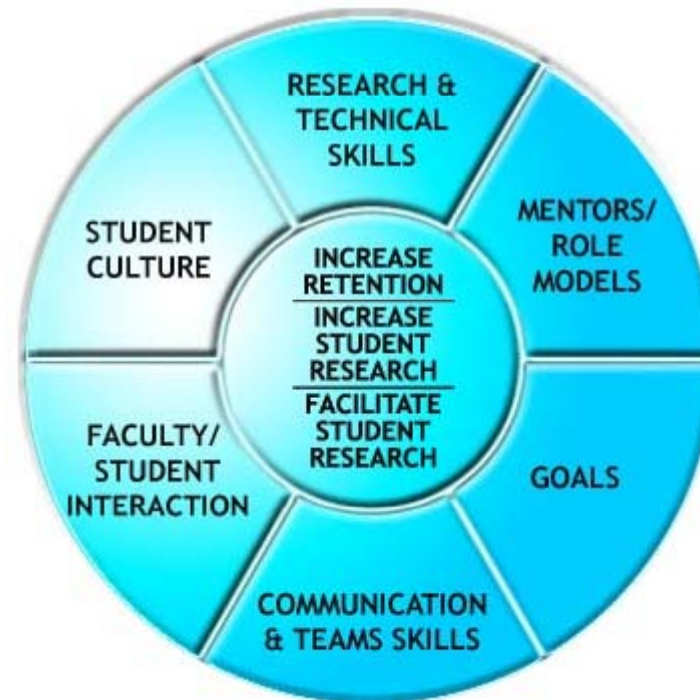
SUCCESS



SUMMARY

Workshop Objectives

- To become aware of the key components of an ARG
- To engage in ARG activities that develop research skills
- To reflect on how one can introduce ARG practices into a research group



QUESTIONS

CONTACT INFORMATION

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CHANGE IS EVOCATIVE



- People love it or hate it.
- Great product is emotive
 - Enhances people's lives
 - Threatens comfort level
- Choose what you can use.
- If successful, haters will come, but commitment from those who love your "product" will outweigh their negativity.

