Engaging Undergraduates in Research

Affinity Research Groups

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The University of Texas at El Paso
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INTRODUCTIONS

Name
Title
Institution
One interesting thing

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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
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
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?

**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

Time: 5 minutes
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?
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
• 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 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

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**Preparation Pairs**

**Teaching/Learning in Triads**
STRATEGY FOR PRESENTATION: VAM

Visual
Active
Memorable

**Time Limit:** 25 minutes
Time Limit: 15 minutes
ACHIEVEMENT PRODUCTIVITY

SOCIAL SKILLS AND GROUP PROCESSING

PROMOTIVE INTERACTION

Real work done together
Task and personal support
CQI
Teamwork
Constructive Conflict
Clear Group Goal
Commitment to Self and Others
Assessment of Individual and Group Efforts

POSITIVE INTERDEPENDENCE AND INDIVIDUAL/GROUP ACCOUNTABILITY
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

<table>
<thead>
<tr>
<th>Description</th>
<th>Benefits</th>
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</thead>
<tbody>
<tr>
<td>• Associate deliverable with assigned task</td>
<td>• Develop domain expertise</td>
</tr>
<tr>
<td>• Provide constructive criticism of deliverable</td>
<td>• Hone technical and communication skills</td>
</tr>
<tr>
<td>• Examples: presentation, critical review, summary, literature review</td>
<td>• Contribute tangibly to project</td>
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<tr>
<td></td>
<td>• Structure accountability</td>
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# SMALL-GROUP MEETINGS

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

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<tr>
<th>Description</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Structured meetings</td>
<td>• Structure accountability</td>
</tr>
<tr>
<td>• Status and problem reporting</td>
<td>• Practice group and communication skills</td>
</tr>
<tr>
<td>• Discussion/presentations</td>
<td>• Develop domain expertise</td>
</tr>
<tr>
<td>• Teach concepts</td>
<td>• Evaluate goals, tasks, and methodology</td>
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<tr>
<td>• Constructive criticism</td>
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## LARGE-GROUP MEETINGS

Integrate research results and develop higher-level thinking skills

<table>
<thead>
<tr>
<th>Description</th>
<th>Benefits</th>
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</thead>
<tbody>
<tr>
<td>• Recognize students</td>
<td>• Foster cooperation</td>
</tr>
<tr>
<td>• Inform group of research</td>
<td>• Transfer results</td>
</tr>
<tr>
<td>• Teach and practice higher-level skills</td>
<td>• Develop domain expertise</td>
</tr>
<tr>
<td></td>
<td>• Practice skills</td>
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**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
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
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

Support
Develop
Recruit
Identify

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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
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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.