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Using the RSD Framework to Address Equity Gaps in Undergraduate Research
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Well established benefits of participating in undergraduate research:

- higher rates of persistence and degree-completion
- academic achievement
- self-efficacy
- analytical and communication skills

Most pronounced for students underrepresented in higher education: racial & ethnic minorities, Aboriginal, low-income, and/or first-generation
Supportive relationships with professors & advantageous opportunities afforded by participation in UR are particularly beneficial for students from historically underserved groups.

The resources accrued through networks of influential relationships (Bourdieu, 1986)
In many universities, access to co-curricular UR favors economically advantaged students with family legacies of higher education.
UR opportunities in North America are offered to highest achieving students to work like junior colleagues with profs in mentored collaborations.
Professors may hold unconscious biases about who’s prepared for scholarly work.

Around the world, people choose collaborators with smallest social distance, or cultural and behavioral difference.
Western higher ed faculty tend to value **INDEPENDENT** social norms:

- students acting of their own volition
- independent of others’ expectations
- making an impact on the world

(Stephens, Fryberg, Markus, Johnson & Covarrubias, 2012)
Those values align with how Western students of middle- & upper-class backgrounds are often raised, imbued with

- sense of self-worth
- individual preference & choices
- control over their own lives
- resources to exercise personal decisions
Indigenous & working-class students often raised with **INTERDEPENDENT** social expectations:

- focus on family/community
- limited personal resources
- fewer chances than affluent peers to exercise preferences & control

(Stephens, Fryberg, Markus, Johnson & Covarrubias, 2012)
“All undergraduate students in all higher education institutions should experience learning through, and about, research and inquiry ... through a research-active curriculum” (Healey & Jenkins, 2009, p. 3).
Workshops based on principles of **Research Skill Development (RSD) Framework** (Willison & O’Regan, 2007):

8 diverse universities and 4 international teaching & learning conferences in United States and Canada
Map for developing students’ research skills in the curriculum in fair & transparent ways—
and a form of social capital: *shared understanding of values in the academy* to which all students have access
2 MAIN POINTS OF RESISTANCE

• Research already embedded in curricula because students write research papers & conduct lab experiments

• Capstone/Dissertation/Thesis requirements constitute adequate UR experiences
“Research” takes on different connotations, so criteria for authentic UR are helpful.
Authentic Undergraduate Research is...

- MENTORED: faculty-scholar guides process, structures stages of research, provides feedback

(Adapted from Osborn & Karukstis, 2009)
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• DISSEMINATED: results shared with community of practice to exchange findings, respond to questions, refine thinking

(Adapted from Osborn & Karukstis, 2009)
Those 4 criteria align with RSD Framework—Y axis conceptualizes research process from start to finish, regardless of researcher’s experience or field.

Stages of the process reflect *mentored, original, disciplinarily appropriate, disseminated* research.
Research Skill Development Framework

For educators to facilitate the explicit, coherent, incremental and cyclical development of the skills associated with researching, problem-solving, critical thinking and clinical reasoning.

Students' Autonomy when Researching

Prescribed Researching
Highly structured directions and modelling from educator prompt research, in which:

- Students respond to questions/tasks arising explicitly from a closed method.
- Use a prescribed approach to clarify questions, terms, requirements, expectations & ECST issues.

Bounded Researching
Boundaries set by and limited directions from educator channel researching, in which:

- Students respond to questions/tasks generated by & implicit in a closed method.
- Use several provided structures to clarify questions, terms, requirements, expectations & ECST issues.

Scaffolded Researching
Scaffolds placed by educator shape independent research, in which:

- Students respond to questions/tasks generated from a closed method.
- Use a combination of several provided structures or approaches to clarify questions, requirements, expectations & ECST issues.

Open-ended Researching
Students initiate research and this is guided by the educator:

- Students generate questions/hypotheses framed within a closed method.
- Students collect data from self-selected sources using one of several provided methodologies.

Unbounded Researching
Students collect data from self-selected sources, developing an appropriate methodology with self-structured guidelines:

- Students evaluate information/data & the inquiry process using self-determined criteria developed within parameters defined. Reflects to refine others’ processes.

Faces of Research

R - Research

Embark & Clarify
What is our purpose?
- Students find & generate needed information/data using appropriate methodology.

Find & Generate
What do we need?
- Students collect & record information/data using a prescribed methodology.

Evaluate & Reflect
What do we trust?
- Students determine the credibility of sources, information & data & make own research processes visible.

Organise & Manage
How do we arrange?
- Students organise information/data using prescribed structure.

Analyse & Synthesise
What does it mean?
- Students interpret information/data & synthesise knowledge into prescribed formats.

Communicate & Apply
How will we relate?
- Students communicate with each other and understand research throughout set tasks. Use prescribed genres to develop & demonstrate understanding to a prescribed audience.

Students develop research mindset through engagement with content, and increasing awareness of ethical, cultural, social and team (ECST) aspects, when they...

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RSD Framework Y Axis

- embark on investigation
- find information
- evaluate information & selected process
- organize information & manage research process
- analyze/synthesize & apply new understandings
- communicate new knowledge

Characteristics of Authentic UR

- mentored
- original
- disciplinarily appropriate
- disseminated
RSD Framework on X Axis - Mentorship

Lays out researcher development across continuum of students’ independence and mentors’ responsibilities

From Level 1: low level of autonomy with highly prescribed tasks

To Level 5: high degree of autonomy with open-ended, student-initiated tasks
Capstone/Thesis projects often meet 4 criteria for authentic UR:
- mentored
- original
- disciplinarily appropriate
- disseminated

But students cannot learn research process successfully in one course/project.
Those who enter university with above-average skills & high social capital more likely to succeed in one-off research projects

Simply adding capstone requirement can actually reify divide between privileged and underserved students.
Using RSD Framework to plan beyond single capstone and **scaffold each stage of UR**, from first to final semester, promotes student success more justly.
Equitable participation in UR “can be achieved through structured interventions” (Healey & Jenkins, 2009, p. 3)

RSD Framework provides that structure:

• which skills are important outcomes of a program
• where those skills are appropriately introduced and reinforced
• how to design curricula at course and program levels to develop those skills
RSD Framework breaks down divide between students who can afford co-curricular research and those for whom anything beyond course requirements seems impossible.
“I didn’t think students like me got opportunities like this.”

Melvin Caballero at Posters on the Hill in Washington, DC