



Research Learning Experiences (RLEs)

University of Maine System Student Success & Retention initiative

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Research Learning Experiences Context

- Student Success & Retention Outcomes & Initiatives
 - RLE Definition & Examples
 - Growth and Scale
 - RLE Logic Model & Assessment



Student Success & Retention Outcomes and Initiatives

Short-term outcomes

Long-term outcomes

First-term course success

Term 1 →
Term 2
Retention

Year 1 → Year 2 Retention Ongoing
Persistence /
Credit Success

Graduation

Alumni Employment

Research Learning Experiences

Extended "bridge week" new student orientation, research-based courses using high-impact practices

First Destination

System-wide collection of employment and graduate school outcomes

Gateways to Success

Undergraduate learning assistants / active learning strategies in high DFWL courses

Pathways to Careers

System-wide and industry partner collaboration to expand paid undergraduate internships



What makes an RLE?

- Summer "bridge week"
- First-semester experience
- Course-based research for credit
- Small class size (<24)
- Pedagogy focused on discovery, knowledge creation, experiential learning, active learning



RLE 01 Print in 3D Learn more +



RLE 02 Map history Learn more →



RLE 03 Blow up art Learn more ->



RLE 04 Harvest timber Learn more ->



RLE 05 Make friends and build community Learn more →



RLE 08 Inspire Earth's future with design Learn more →



RLE 09 Innovate Learn more +



RLE 10 Track animal DNA





RLE 12 Research wind power





RLE 13 Experience engineering Learn more ->



RLE 14 Make a better farm

Learn more →



RLE 16 Play with electricity

Learn more ->



RLE 17 Explore Maine's landscapes

Learn more +



RLE 19 Garden like a medieval monk

Learn more →



RLE 20 Track the shifting seasons

Learn more →



RLE 21 Energize a mechanical system

Learn more →



RLE 22 Make a unique logo

Learn more →



RLE 23 Perform music

Learn more ->



RLE 25 Explore the outdoors

Learn more →



RLE 26 Hunt for viruses Learn more →



RLE 28 Experience art and culture Learn more →



RLE 29 Interpret geologic history

Learn more →



RLE 30 Develop sustainable solutions

Learn more →



RLE 31 (Don't) sponsor an athlete

Leam more →



RLE 33 Measure a forest Learn more →



RLE 34 Cruise a river

Learn more →

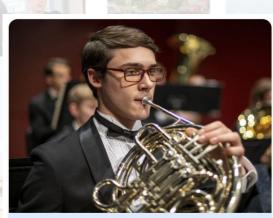


RLE 14

Make a

better farm

Learn more →



RLE 23

Perform music

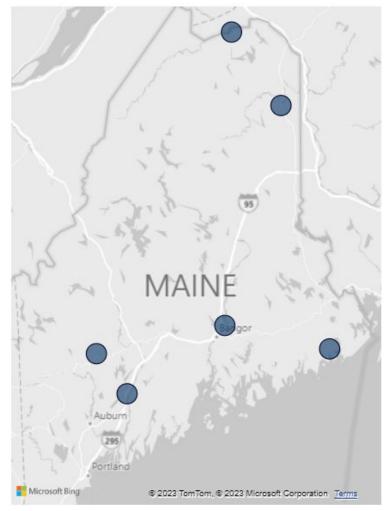
Learn more →

RLE 01 Print in 3D

Learn more →







Growth and Scale of RLE

| Unique Students (RLE courses) | 2021-22 (Y1) | 2022-23 (Y2) | Total |
|-------------------------------------|-----------------|-----------------|-----------|
| University of Maine at Augusta | | 17 (1) | 17 (1) |
| University of Maine at Farmington | | 148 (12) | 148 (12) |
| University of Maine at Fort Kent | | 28 (4) | 28 (4) |
| University of Maine at Machias | 6 (1) | | 6 (1) |
| University of Maine | 241 (39) | 42 (355) | 594 (84) |
| University of Southern Maine | | | |
| University of Maine at Presque Isle | | 9 (5) | 9 (5) |
| University of Maine System | 247 (40) | 557 (64) | 802 (104) |



Logic Model

Short-term Long-term Outputs Activites Inputs Goal Outcomes Outcomes Participants' Harold Alfond Courses reflect the Overall retention cognitive abilities in **Foundation Grant** program-established and graduation terms of the Money cognitive and rates increase in research/discovery 5 dispositional RI F course the University of process are outcomes development Maine. expanded. Faculty use high-Faculty time and Participants' Participants gain impact expertise personal meaningful instructional RI F course dispositions are employment after To equip practices in delivery (26 students to enhanced college. courses sections) have meaningful Student lives and Different types of Participants have participation careers. **Participants** research/discovery increased persist in college courses are confidence in Summer Bridge in their first and offered by faculty. career-ready skills Week second years. Administrative A diverse body of processes Increased students will -communication Participants are internship OR -promotion participate in RLE empowered to independent courses and -training and research engage with the Summer Bridge support university. participation Week



Implementation of Assessment

| Assessment Activity | Timing | Time needed | Tech System | RLE sections | non-RLE control group |
|---|--------------------|----------------|----------------|-----------------|-----------------------------|
| Faculty alignment survey Provide information on alignment of course and assignments with the learning outcomes | First 1-2 weeks | As needed | Qualtrics | • | |
| Student pre-course survey Scales on sense of belonging, academic self-efficacy, research self-efficacy, etc | First 1-2 weeks | 15 minutes | Qualtrics | ~ | ~ |
| Faculty survey High-impact practices and instructional approaches employed, feedback on implementation, likelihood to teach an RLE again, etc | After midterms | 15 minutes | Qualtrics | • | |
| Student post-course survey Scales on sense of belonging, academic self-efficacy, research self-efficacy, etc, experiential learning and project ownership | Last 1-2 weeks | 15 minutes | Qualtrics | • | ~ |
| Rubric Assessment Faculty assess students on at least one cognitive learning outcomes | Last week / finals | As needed | Brightspace | • | |



Results & Findings

- Outcomes from Pilot Years 1 and 2
 - Student Surveys
 - Student Interviews
 - Future Analyses

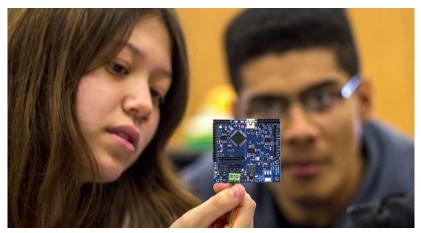


Pilot Year Outcomes: Fall 2021

- RLE students' post scores differed significantly from their pre scores on the following survey constructs:
 - Collaboration
 - Confidence in Research Tasks
- Similar, and significant drop from pre-post in *Morale* for both RLE and non-RLE students.
- No statistically significant differences were found between RLE and non-RLE students when controlling for demographic characteristics.

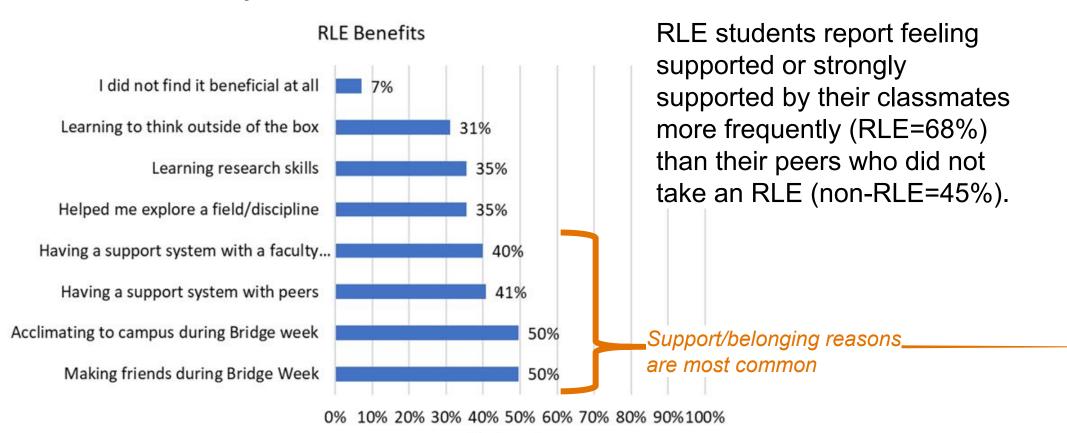








Student-Reported RLE Benefits

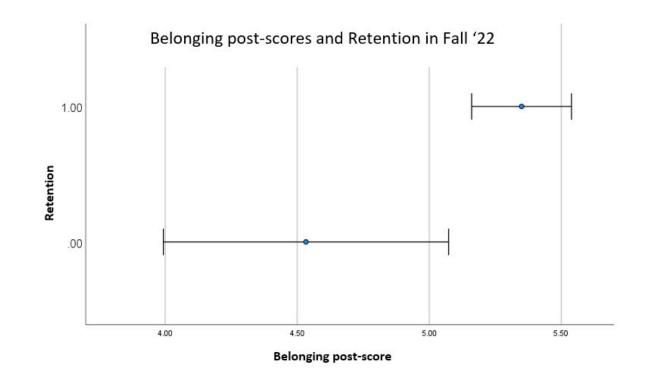


% of students



Survey Outcomes & Retention (Pilot Cohort)

- First year retention is not statistically different between RLE (75.9% retained) and non-RLE (72.7%) [controlling for demographics], though RLE is slightly higher.
- For all students (RLE and non-RLE), Sense of Belonging to UMaine post-scores are positively related to first-year retention [controlling for demographics].





Student Interviews - Pilot Cohort

- Themes [positive, sense of belonging]
 - Support system (8 students)
 - Learning about university resources (5)
 - Acclimating to campus early (3)

"...I would say closest friends, almost all of them are from the RLE except for like a few..."

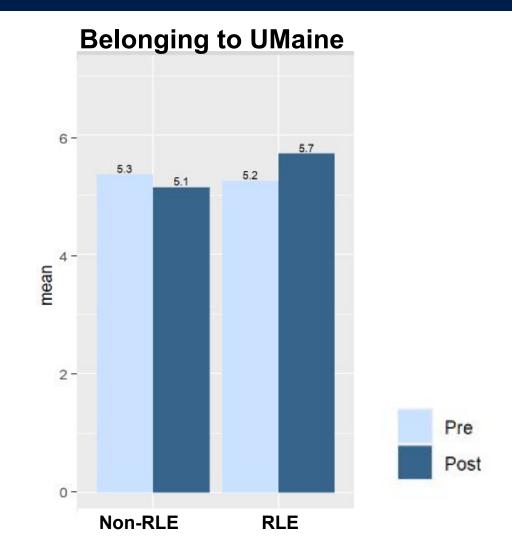
"I thought it was really cool that I got to be here a week early, and I didn't have to move in with everybody else because that would've caused, you know, panic and anxiety"

"I have a goal in mind ... and the RLE showed me okay, you have these tools..."



Preliminary Outcomes: Fall 2022 at UMaine

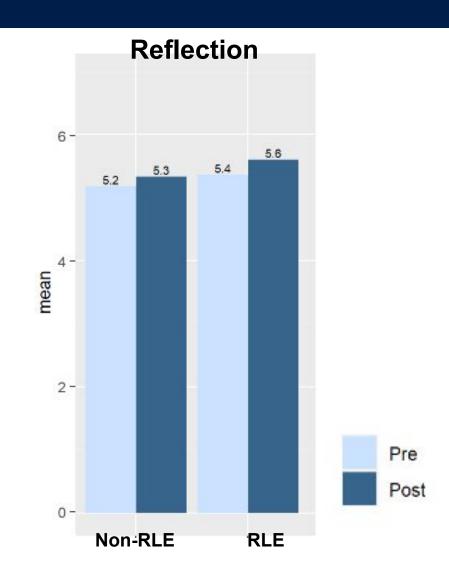
- Sense of Belonging to UMaine:
 - RLE students scored significantly higher on the post survey as compared to non-RLE students [controlling for pre-score, sex, HS GPA, First-gen, Pell, and course].





Reflection:

- RLE students scored significantly higher on the post survey as compared to non-RLE students [controlling for pre-score, sex, HS GPA, First-gen, Pell, and course].
- Faculty reported using reflection in RLEs more often than in other courses:
 - Student reflection on effective college/study strategies (81% of faculty used in RLE; only 26% used in other classes)
 - Student reflection on research/exploration process (97% vs. 45%)





Interviews - Fall 2022 Cohort

- Currently conducting interviews focused on how and why RLEs impact sense of belonging.
- Sample: Students who increased on belonging from pre-post, and others who decreased.





Future Directions: Analyses

- Are RLEs particularly beneficial for marginalized or underrepresented groups of students (e.g., first-generation students)?
- Which RLE course strategies are most effective at increasing student outcomes (e.g., field work, reflection)?
- Considering how to account for experiential learning that students get OUTSIDE of RLEs.
- Evaluating program impact with controls for opt-in effects





Future Directions

- Addressing RLE participation, RLE participants are disproportionately lower retention risk
- Refining the RLEs based on assessment
- Growing initiative at smaller, rural campuses





Thank you! Questions?

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