

Board 41: Counter-Storytelling in Intergenerational STEM Experiences

Dr. Jessica Rush Leeker, University of Colorado Boulder

When expanding her impact within her community—and encouraging others to do the same—there is no shortage of inspiration and devotion within Dr. Jessica Rush Leeker.

Fueled by her desire to deepen her knowledge and understand how she can leave a lasting impact on the world and the people around her, Dr. Rush Leeker has cultivated a rich educational background. Equipped with her undergraduate degree in Supply Chain and Information Systems from Penn University and her Ph.D. in Engineering Education and MBA in Sustainability and Operations from Purdue University, she is proud to currently share her expertise as an Engineering Professor at CU Boulder.

Marlene Sulema Palomar, University of Colorado Boulder

Lyndsay Rose Ruane, University of Colorado Boulder

Lyndsay Ruane is a PhD student at the University of Colorado Boulder, studying aerospace engineering. Her research experience is broad, including medical and nuclear physics, GNSS, signal processing, as well as STEM and engineering education. Currently, she is focused on diversity and retention in aerospace engineering.

INTRODUCTION

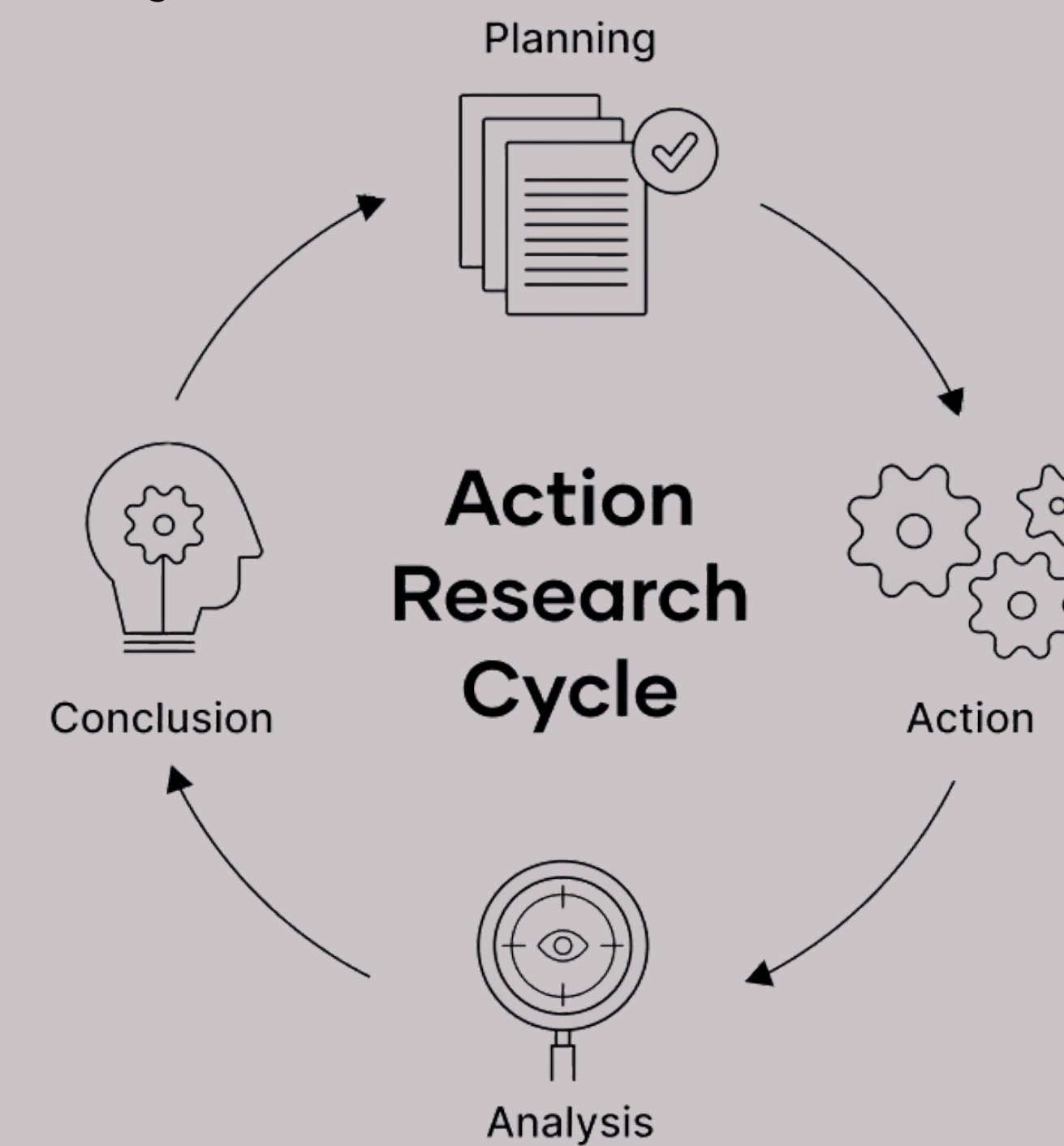
Exploring the innovative application of the Participatory Action Learning and Action Research (PALAR) framework in engineering education, this research addresses complex dynamic social issues through multifaceted engagement.

PROJECT DESCRIPTION

This project spans multiple institutions and disciplines, engaging undergraduate, graduate, and faculty participants in a collaborative research effort. Communication challenges are addressed through structured yet flexible interactions fostered by PALAR.

3 Action Research (AR):

Involves a systematic process of acting, observing, reflecting, and re-evaluating, which promotes continuous improvement and transformative social change.



CONCLUSION

PALAR is a valuable framework for engineering education, offering necessary structure while accommodating the flexibility required to address real-world complexities and foster innovative solutions.

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CORE COMPONENTS OF PALAR

1 Participatory Research:

Facilitates deeper engagement and investment by involving participants directly in the research process, enhancing the overall quality and applicability of findings.



2 Action Learning (AL):

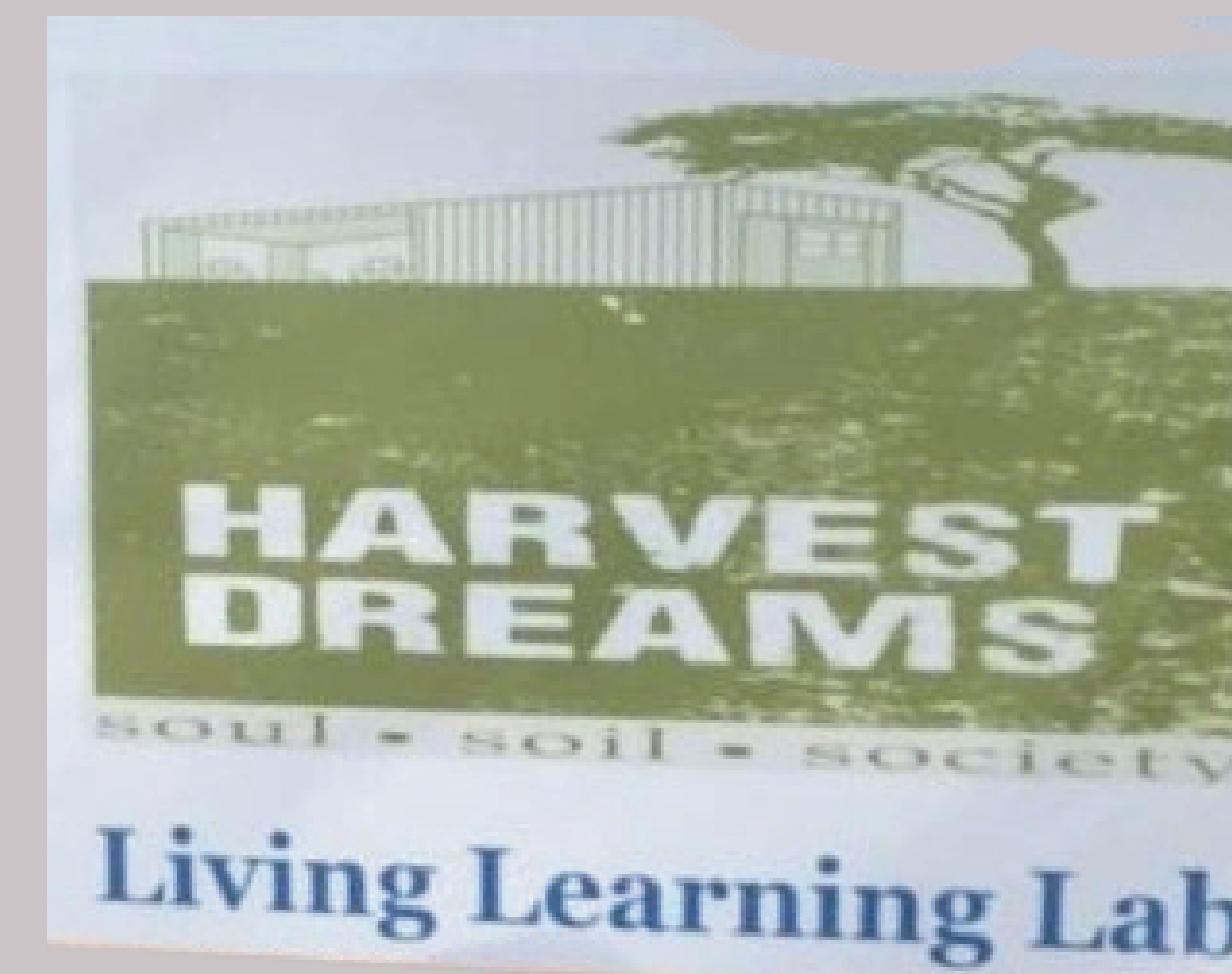
Centers on a 'learning by doing' approach where actions are taken first, followed by reflection. This cycle enhances problem-solving skills and practical application in real-world settings.

METHODOLOGY

Each PALAR component was adapted to fit the engineering context, focusing on structured yet adaptable processes suitable for complex educational environments.

OUTCOMES AND REFLECTION

The application of PALAR resulted in enhanced communication skills, increased personal agency among participants, and improved collaborative outcomes. These successes demonstrate PALAR's effectiveness in engineering education."



WHAT IS PALAR?

PALAR combines participatory action, action learning, and action research into a cohesive framework initially developed by Ortrun Zuber-Skerritt in 2011 for community projects. It aims to facilitate comprehensive, dynamic engagement.



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