

Using PALAR to Formalize Informal Education

Lyndsay Ruane, Hannah Sanders, Laura MacDonald, Jessica Rush Leeker
University of Colorado Boulder
Corresponding Author Email: Jessica.Leeker@colorado.edu

Abstract

Context

This paper analyzes a self-developed, STEM-focused community engagement project undertaken by faculty, staff, graduate and undergraduate students from a predominately white and a minority-serving institution. The inter-institutional project uses the Participatory Action Learning and Action Research (PALAR) theoretical framework for community engagement to examine tenets of anti-racism and decolonization within higher education.

Purpose or Goal

The central hypothesis is that an inter-institutional approach to educational transformation centered on democratizing innovation across institutional boundaries will prepare next-generation innovators to address systemic and institutional racism within STEM by challenging higher educational norms. The PALAR approach provides a robust framework through which researchers can simultaneously participate in "action learning" and analyze the effectiveness of the informal educational setting they have created.

Methods

The PALAR framework is a process-based knowledge, research, and development paradigm incorporating emotions, communication, logical problem-solving, critical thinking, and social experiences. The research team collected multiple forms of qualitative data, including quarterly interviews, group meeting observations, and weekly student journals, to investigate the development of participant attitudes and relationships.

Outcomes

One way PALAR-framed pedagogies differ from traditional classrooms is in the role of faculty and staff researchers, serving primarily as guidance rather than authority. The ambiguity and lack of a formal classroom format challenged researchers to critically self-reflect but also acted as an initial hindrance for student participants. Accustomed to traditional classrooms, the students reported discomfort and confusion while they navigated an unfamiliar level of control over their learning.

Conclusion

Informal education through PALAR allowed researchers and students to reflect critically on learning and education assumptions. The process-built subjectivity inherent to PALAR led to improved knowledge sharing compared to traditional learning methods. This subjectivity also allowed researchers and community members to present themselves as resources and consultants, rather than authority figures, making those involved more comfortable with the new (informal) learning process.

Keywords— Undergraduate students, informal learning, institutional change, PALAR framework

I. INTRODUCTION

PALAR (Participatory Action Learning and Action Research) is a paradigm designed to confront complex and dynamic social problems. By incorporating research subjects as active participants, PALAR challenges typical relationship dynamics and power structures to support broadened perspectives, increased agency, and personal growth. The framework facilitates community engagement with cyclical and reflective processes that are intentionally adaptable and self-motivated.

This project is fundamentally focused on the collaborative creation of a Living Learning Laboratory in the southern United States. The Laboratory will concentrate on education, sustainability, and community service while also studying and accounting for the racial and socio-historical influences of the land. Through its creation, community engagement will be established as a partnership, actively involving and recognizing perspectives and expertise from local populations. The Laboratory will support sustainable infrastructure and climate resiliency research in a uniquely versatile and informal learning environment while deliberately incorporating local culture and history. These research topics will provide a platform to explore educational norms in higher education, addressing systemic and institutional racism within STEM fields through an increased understanding of existing institutional boundaries.

To accomplish this, one cohort of students from two different undergraduate institutions will work together with the support of faculty and community members. The institutions consist of a predominately white institution (PWI) and Historically Black Colleges and Universities (HBCU), combining knowledge and resources to facilitate profound change in undergraduate education by understanding and enacting tenets of anti-racism and decolonization. Each year, over four years, a cohort of ten students from each institution is selected through an application and interview process. Student collaboration is mainly remote, with occasional in-person site visits. A team of faculty, staff, graduate and undergraduate

student researchers, and community members supports them.

The structure of that support team provides a significant distinction from other projects, as PALAR delegates faculty researchers to serve primarily as guidance rather than authority members. This unusual authority structure was a defining factor of the PALAR framework and its implementation in inter-institutional informal education.

II. PALAR OVERVIEW

Participatory Action Learning and Action Research combine multiple theories of action research to establish a comprehensive and dynamic structure for community engagement. Created by Ortrun Zuber-Skerritt (2011), PALAR combines participatory action research and action learning concepts in a project- and process-based paradigm and learning theory. By design, the framework pulls pieces from existing action research practices to serve as an adaptable "philosophy, a methodology, a theory of learning, and as a facilitation process for community engagement" (Zuber-Skerritt, 2015, p. 5).

PALAR is best described as a sum of its parts. The "AL" portion refers to action learning (AL), a problem-solving method involving taking action and reflecting on results afterward. In "learning by doing," AL typically focuses on collaboration and critical reflection to generate fresh understandings (Marquardt, 1999; McGill & Brockbank, 2007; Zuber-Skerritt, 2015). In PALAR, action learning works with action research (AR), a more systematic method that seeks to solve social problems via transformative change. AR utilizes a repetitive cycle: taking action, observing, reflecting on those results, and then retaking action with reflection-based reevaluations. Together, AR and AL actively collect knowledge and facilitate an involved, dynamic, and cumulative method of inquiry.

Finally, the "P" in PALAR refers to "participatory" research. This paradigm requires the deliberate involvement of research subjects, all working toward "inclusion, social justice, and equality of participants" (Zuber-Skerritt, 2015, p. 7). Ultimately, PALAR designates that participants observe and reflect on action results and are personally invested in project outcomes, granting a uniquely dynamic and observational perspective on the project's creation.

Our project was designed to utilize PALAR's four standard recurring stages: plan-act-observe-reflect. These four stages comprise the cycle consistently repeated at all levels throughout each project year. At the end of each cycle, reflections are utilized to plan the next round of action steps, and those constant reevaluations are key for PALAR projects to respond "effectively to complex issues in rapidly changing contexts" (Zuber-Skerritt, 2011, p. 1).

In its deliberate design, the framework's informal, interdisciplinary, and learner-centered approach differs vastly and fundamentally from a traditional classroom setting.

PALAR aims to find meaningful solutions to social justice problems with dynamic collaboration and project-based development (Teare & Zuber-Skerritt, 2013). This approach's self-initiated and self-directed nature is essential for meaningful personal growth and sustainable social change.

Structurally, the research team in a PALAR project is established drastically differently from a traditional classroom. The research subjects, the undergraduate cohort in this context, contribute to the project and the research as active participants. The lead investigator, on the other hand, joins the subjects and contributes to conversations more similarly to a peer than an authority figure. That dynamic supports the investigator "researching with, rather than on, community members while perceiving them as co-participants rather than mere informants and/or recipients of knowledge" (Kearney et al., 2013, p. 118). This unconventional structure introduces an informal relationship between co-researchers, encouraging humanized, personal perspectives and meaningful context.

When researchers offer guidance instead of acting with authority, PALAR also opens meaningful growth opportunities among participants. For societal change to be meaningful and withstand time, participants must be willing and able to maintain progress through self-motivation, confidence, and agency. Without an authority figure to dominate advancement, PALAR "allows academic researchers to partner with people to help them learn how to improve their situation, drawing on their lived experience and intimate knowledge of the challenges they face" (Wood, 2015, pp. 79-80). When successful, PALAR provides contextualized solutions to social problems and enables participants to continue meaningful and transformational work in their communities.

III. METHODS

To follow and understand PALAR, student and faculty researchers regularly reevaluated and reorganized the methods and structures of the project. We regularly collected qualitative data throughout the project, analyzing dynamics, relationships, and attitudes over time. This qualitative data included quarterly interviews, surveys, group meeting recordings, weekly journals, and field notes.

Over the first year, faculty researchers performed 30-45 minute quarterly interviews with each undergraduate student in the cohort. To promote honest feedback, the researchers who performed these interviews were not the same faculty members with whom the cohort is in regular contact. Interviews were conducted with open-ended questions, allowing space for free expression and authentic reactions. After the first round of interviews, we decided to implement surveys to accompany all subsequent interviews, which provided additional structure and allowed interviewers to prepare better to ask about topics most relevant to individual students.

Additionally, the undergraduate cohort met remotely as a group every week for one hour. During this hour, the students

facilitated their discussions and held each other accountable for completing deliverables. A graduate student researcher attended each weekly meeting to take field notes and provide support, and recordings of each meeting were transcribed for observation and trend identification. Students often utilized these meetings for work that required high levels of collaboration, providing a platform for researchers to study their interactions.

Along with weekly meetings, student participants must submit a weekly journal. These journals were available only to the research team, not to the other cohort students. That semi-privacy initiated an additional level of anonymity so that students could voice sensitive concerns, such as complaints about particular relationship dynamics, without fear of retribution. The journals also allowed students to reflect on their experiences individually.

Finally, during the first year, the student cohort gathered in person twice. One of those in-person gatherings was at the future site of the Living Learning Laboratory, which was close to home for students from the HBCU, and the second meeting took place in a different state from both institutions, on relatively neutral ground. These meetings were rich in information gathering, collaboration, and relationship-building. Two graduate student observers collected qualitative data from these in-person meetings through field notes.

In the undergraduate cohort, reflections included thoughts on data collection, architectural methods, community involvement, and project and team structure. Concurrently, faculty researchers focused more on the informal learning structure and inter-institutional and community collaboration while considering student perspectives and individual developments.

The research team members range from professional social scientists to third-party graduate student researchers, allowing for the evaluation of various forms of qualitative data on multiple levels. We analyzed the results in the context of a PALAR framework and how it adapted to fit the needs of this multi-dimensional, contextually complex, and highly dynamic project.

IV. RESULTS

PALAR is explicitly designed to identify and solve nuanced, dynamic, and multifaceted societal problems. With research subject participation and consistent reflection and reevaluation, the paradigm allows problem-solving processes to adapt alongside solutions still in development. In particular, student participation facilitates purposeful individual advancement, such as confidence, self-advocacy, and self-agency.

The role of faculty and staff researchers proved to be a significant distinction from the traditional classroom structure. Rather than operating from a position of authority, researchers acted primarily as guidance for the student cohort, challenging typical relationship expectations. Researchers were forced to

reflect critically on interactions and intentional influence, taking care to give the students control of their work.

The undergraduate cohort initially struggled with the project's ambiguity. PALAR provided each student with a level of control over unfamiliar learning, contrasting their accustomed experiences in traditional classrooms. Journals, meeting notes, and interview transcriptions identified structure-based struggles by nearly every student participant, amplified by difficulty with the fully remote format. Likewise, faculty encountered difficulty in maintaining consistent motivation among the students. However, over time, analysis of these same data sources showed improvement via in-person meetings, notable personal development, and recognition of anti-racism perspectives.

A. Structure Struggles

Almost every student reported varying levels of discomfort and confusion in the ambiguity at the beginning of this project. During the second group meeting, a student asked the graduate researcher whether to regard graduate students as "the teachers" or if they should report to the faculty lead. Accustomed to traditional classrooms, they expected some authority to provide assignments, discipline, and general order. This situation reflects the uncertainty sometimes associated with informal learning and emphasizes the importance of individual agency and leadership.

Through journals, more students expressed their initial confusion and desire for more structure. After the first month, one student recognized that without formalized consequences, "many [messages] resulted in poor follow through, or poor results." In the same time frame, another student echoed that sentiment about ambiguity, "having such a loose setup made it hard for me to be fully invested/dedicate enough time to the project," and "not everyone is on the same page" regarding effort levels.

Even in the first round of interviews, which took place about three months into the project, students articulated frustrations, "at first, days weren't as productive as we thought they'd be, or we couldn't...get certain details done." Encouragingly, that same student associated this discomfort with "growing pains," articulating later that "now everyone chimes into [discussions] to some extent, and when they do they sound more relaxed... [it] definitely feels more organic."

Faculty and graduate students felt the pressure of these struggles with structure. Without rubrics or grades to enforce consistent expectations and consequences, the faculty members were met with uneven effort levels among student participants. Students with strong personal motivation or with particularly relevant skills were often forced to make up for incomplete work from their fellow cohort. Therefore, faculty was required to delay several deadlines and readjust expectations repeatedly, which further added to student confusion and frustration.

Eventually, the ambiguity and lack of formal consequences emerged from personal thoughts in journals into the group

discussion. Around the end of the third month, students self-directed a group conversation about "a few concerning issues regarding expecting every member to fully participate and submit assignments ahead of time to prevent delays." This discussion encouraged the students to advocate for themselves, as they began actively participating in the project's structure and asking researchers for the support they needed.

This self-advocacy also emerged in journal writings, where participants brainstormed solutions to their concerns. Those concerns and solutions led directly to changes in the students' self-created structure. For example, one student suggested in their journal, "I wonder if there should be some sort of student leadership to guide everyone along." This situation led to the establishment of weekly facilitators designated to lead a group meeting ahead of time. Multiple students expressed a desire to "organize communication throughout the week so that everyone is up to date on what we should be working on," which was addressed via scheduled weekly check-ins. Students advocated for "a student-led meeting earlier in the week in addition to our Thursday meetings," leading to the establishment of small groups that meet according to expertise and scheduling, separate from the large group meeting.

After this advocacy, faculty still observed unequal workloads and a few more failures to meet deadlines, but on a decreased scale and with an increased understanding and optimism for the future. The student participants were directly involved in identifying issues, searching for answers, and implementing solutions. This structure allowed them to build confidence, agency, and problem-solving skills that would not be present in a traditional classroom. While some struggled initially, individual journals reflected personal growth by the end of the fifth month, "I could see the growth in my communication skills as well as my fellow cohort members."

B. In-Person Benefit

Another notable theme in the qualitative results addressed the difficulty of remote collaboration. A significant focus for this project is the establishment of genuine inter-institutional relationships. In reflections, a staff researcher identified the importance of everyone's presence at the large group meetings, "Time spent in full company is vital in the establishment of meaningful relationships. Group activities, like icebreakers and team-building exercises, are vital in identifying common ground and building mutual respect."

Fairly early on, during the second month, the students met for the first time in person, attending a two-day site visit at the future Laboratory building site in the southern United States. Then, during the fifth month, they met again for a more extended, five-day retreat in Taos, New Mexico, serving as a relatively neutral location for participants from both institutions. After each visit, students reflected and recognized the importance of these meetings, noting that they could complete more work and build more personal relationships over just a few hours of in-person collaboration.

After the first few weeks of ambiguity and confusion, students seemed to find a slight clarity immediately following the first site visit. One student reported in a journal entry the week after that site trip, "I feel like last week's trip was the real start of this project because now we all have a feeling of the site and a lot of valuable information that we can use moving forward." In a group meeting, another student told their peers, "I feel like I have a better understanding of the cultural aspect of the project and what we're actually trying to accomplish," echoed in that week's student meeting.

Completing the five-day retreat in the fifth month diminished some concerns regarding dedication and investment levels. Journal entries from that week stated, "I feel inspired and enriched after our trip to Taos...I gained so much insight. I think that as a group, we are all very invested in this, and at the time and energy to dedicate." Participants even noted personal impacts, "this trip has helped my social [abilities] in a tremendous way. I'm able to translate this to my relationships outside," and another noted within the group, "the trip became an internal and external advantage being that the connection with the team grew stronger and the memories we made are forever with us."

Beyond relationship building and personal growth, students responded positively to the in-person gathering because of increased productivity. One journal entry, written after the second site visit, noted that "when [we] met a few weeks ago, it took no less than an hour to accomplish the same thing it took three weeks to convey to the others."

These reflections from the participants emphasize the importance of meeting in person, even briefly. The two-day and five-day gatherings increased motivation, understanding, and meaningful relationship building.

C. Anti-racism and Decolonization

A key goal for this project was to utilize PALAR to examine tenets of anti-racism and decolonization. At first, students did not pursue this path of discussion. When faculty researchers questioned this at the Taos retreat, students mentioned in the discussion that they "felt like equals" and believed "we are making history with this project."

In encouraging conversations on race and racism, faculty split the student cohort by institution. In those discussions, students were asked to reflect and share their experiences with the complexity of racism. This forced the students to confront unwanted "friction," which was met with resistance. They discussed the importance of recognizing the impacts of racism and colonization, particularly within this project, located in the American Deep South, which is steeped in violent, triumphant, and meaningful history.

Participants mentioned resisting this conversation for several reasons. They did not like being separated and felt it would be more meaningful as a group conversation. They also wanted to "focus on the design," not on any "painful" context. Through this process, faculty observed a lack of deep understanding

among the students, some of them failing to grasp the anti-racism tenet of the project while focusing on technical and historical aspects.

It is important to note that these young people, particularly those young people who are relative strangers to each other, were extremely hesitant to discuss uncomfortable topics like prevalent and systemic racism in existence today. The participants discussed historical racism in their weekly meetings but did not touch on modern impacts until faculty researchers breached the subject.

Promisingly, once the subject was introduced, students seemed more comfortable speaking about racism and decolonization independently. During a group meeting in the sixth month after the Taos trip, participants facilitated their conversation on affirmative action, later described in journal entries as a "rich discussion [that] got everyone's gears turning." Following the same meeting, another journal entry read:

This incident allowed us students to share additional perspectives on other social issues that are actively occurring in our society and generation. The conversations then led to the topic of systemic racism and recognizing the different areas in society where racism serves as a disadvantage, specifically towards African Americans. This issue ranges from the education system to the workforce of employees.

This student-led conversation and meaningful following reflections indicate a willingness to consider systemic problems in conversation. While it needed some researcher encouragement to get started, the resulting discussions could have a lasting impact on the project development and individual participants.

D. Personal Development

Finally, a fundamental characteristic of PALAR is the potential impact on participants. By pushing students to assume leadership and control of their education, we encouraged the development of skills like communication, leadership, initiative, agency, self-advocacy, and broadened understanding. Rather than an "objective, impersonal ideal of scientific detachment," PALAR researchers recognize that "personal transformation is as much an outcome of the process as practical change and theory generation" (Wood, 2015, p. 81) (Polanyi, 1958).

In journals and interviews, students reported new perspectives, recognizing that this "research project so far has broadened my thought process more than I would have imagined." They also began to relate with the community and account for local needs, "I have to consider how things could be replicated in the community, so I try to be mindful of what community members have [access to]."

Students also reflected on increased communication and meaningful conversational skills, "I found all the suggestions and advice [from faculty guidance] to be extremely helpful. I think it...will be helpful in opening up the conversation or deepening it." They also journaled about the impact of their Proceedings of REES 2024 KLE Technological University, Hubli, India, Copyright © Lyndsay Ruane, Hannah Sanders, Laura MacDonald, Jessica Rush Leeker, Using PALAR to Formalize Informal Education, 2023

fellow cohort members, especially praising the discussion leaders for specific weeks, "the discussion leader...enhanced the discussion of positionality statements greatly."

Finally, after only five months with the project, or about one school semester, student participants reported increased initiative and self-advocacy. This report included acknowledging when help was necessary, first recognizing that "I need to practice the utilization of these sources in the future." That same student later noticed about themselves, "I am also learning the value of reaching out to others for help or knowledge."

Faculty recognized this personal growth through participation levels in group projects and meetings. While still encountering uneven workload frustrations and lack of motivation to meet deadlines, researchers observed deep growth in understanding and personal participation by each student. This helped to contextualize perceived effort levels and provided opportunities to attempt various methods of engagement for future projects.

Ultimately, the structural issues and reevaluations demonstrate the students' progression into self-motivated problem-solvers. More than half of the participants expressed at some point their desire to create a lasting impact beyond the scope of this project. In one interview, one of the students defined their idea of success: "I think if I can just leave a mark on it... that would make me really proud of, like, being in there. My idea of success is kind of in longevity."

V. CONCLUSIONS

In the first half-year of this project, faculty and staff researchers immediately struggled to balance their preexisting ideas of zero control and complete control of a class. Simultaneously, student participants struggled to comprehend and take advantage of their atypical levels of control. Along the way, most students acknowledged the benefits of in-person meetings for remote collaborations, the significance of systemic racism and colonization, and the opportunities for personal development that will impact participants for years to come.

These findings reflect lessons learned in designing a PALAR project and provide guidelines for future researchers. For example, if roles and responsibilities are articulated, participants may adjust more quickly to an ambiguous, informal structure. The unusual power dynamic and lack of authority caused students to feel confused and unmotivated, and they needed some initiation structure. Future projects should consider establishing roles and expectations within the first few meetings to avoid a "slow start." Additionally, if possible, opportunities for in-person collaboration should be prioritized, as participants value these meetings, even if only for a few days. That introductory meeting creates a foundation for solid relationships, communication, and emotional buy-in and can introduce a vital kickstart to the project's progress.

The AL/AR portion of PALAR was really put to the test by

faculty, expressly through their attempts to inspire self-motivation and deep introspection. Without negative consequences typically seen in formal classrooms for incomplete work or missed deadlines, it seemed easy for students to fall into relaxed roles. Faculty addressed this in several reassessment cycles, attempting accountability through fellow students, graduate leads, and finally faculty intervention. The most success was gained via expectations that were articulated from the beginning. Future projects will take this understanding to articulate necessary requirements from the beginning of the project and to enforce deadlines with more tangible consequences, such as a three-strike removal system. Another example of AL/AR cycle learning was when students hesitated to discuss what they considered to be controversial topics in anti-racism and decolonialization. Faculty realized that kind of deep introspection and confrontation were never articulated as expectations. In future projects, researchers should ensure that students understand the objectives of the project itself, including requirements for addressing social issues for transformative impact.

Other lessons learned also affect the speed of a project. In this case, participants needed an in-person initiation to feel comfortable discussing issues like systemic racism. If future projects are on a faster timeline, they may need to consider introducing sensitive topics early to allow students time to feel comfortable. However, if future projects have sufficient time and flexibility, the added freedom of making mistakes and self-correcting along the way encouraged students to advocate for themselves and develop intrinsic motivation that they will carry beyond this project's scope.

The PALAR framework implemented in this project required critical self-analysis at all levels, introducing and establishing informal learning as a powerful and legitimate education tool and compelling students to take their education into their own hands. The flexibility allowed by PALAR facilitated knowledge sharing and learning between institutions, researchers, and community members of varying backgrounds.

Throughout the first five months of this project (one semester), student participants were able to learn and grow in an informal environment. By leading themselves and using faculty/staff researchers as guides, the undergraduate cohort independently recognized, addressed, and suggested solutions for various complex and multifaceted problems. This process encouraged problem-solving that was inclusive of a wide range of community members and also encouraged individual improvement. The informal learning process facilitated discussions, personal development, and critical reflection that would have been unavailable in traditional classrooms, and PALAR provided a designated framework for analysis amid intentional ambiguity.

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