

From Listener to Learner

A Podcast to Peek Behind the Curtain of Research Experiences

Multiple barriers contribute to undergraduates' lack of involvement in research, including self-doubt, misperceptions about research, and naivete about resources. Furthermore, when research is highlighted, the focus is often on polished final products and described in specialized language that can make such experiences feel even more unattainable to students. We created a podcast focused on the *hows* and *whys*—not just the *whats*—of research and inquiry experiences to pull back the curtain and make processes and pathways more transparent. Our conversations with guests help normalize challenges and roadblocks related to research and inquiry. In this article, we reflect on takeaways from our podcasting experience that support undergraduate research teaching and learning: practices and attitudes that guests uncovered as central to their experiences and the value of storytelling as a tool for pedagogy and community building.

A Podcast to Make the Research Process More Transparent

The literature shows undergraduate research is a “high-impact practice.”¹ However, only a fraction of graduating seniors report participating in undergraduate research.² A variety of barriers contribute to undergraduates' lack of involvement, including self-doubt, misperceptions about research, and lack of awareness and understanding about pathways to engage in research and resources to support research.³

In an effort to pull back the curtain on the paths and processes related to research that are so often opaque and confusing, we created the podcast *From Concept to Creation: Uncovering the Making of Scholarly and Creative Accomplishments*. Episodes feature conversations with guests about a research/inquiry project and/or a professional path. We draw out guests' reflections on the inner workings (i.e., steps, skills, behaviors, and attitudes), pivotal moments, and rough edges of their experiences and journeys, as well as the resources, partners, and mentors integral to their process. By offering a behind-the-scenes view of the frequently hidden and messy process of research and inquiry experiences, we aim to increase their transparency, thereby making them more approachable and accessible. In so doing, we also seek to expose challenges inherent in these experiences and reframe these difficulties as expected and even productive rather than as roadblocks.

Our podcast grew out of an in-person panel discussion series we developed for our campus with similar aims: cultivating students' awareness of research- and information literacy-related behaviors and attitudes, reducing barriers between faculty/staff and students, and

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promoting an inquiry culture.⁴ During the COVID-19 pandemic, we moved the program online via Zoom. Recognizing that online delivery could help extend the program's reach to include the entire Penn State ecosystem, we transitioned to the podcast format as it offered still greater versatility.

Podcast Guests Reflect on Undergraduate Research Experiences and More

As of spring 2026, we have interviewed thirty-seven guests and published thirty episodes in four seasons.⁵ Guests include Penn State students, faculty, staff, and alumni from across disciplines, experience levels, and campus locations. Many episodes feature undergraduates and recent alumni reflecting on their undergraduate research experiences. Safitaj Sindhar and Neila Raveen, for example, discussed how they took their first steps toward research and overcame self-doubt to clarify their interests and goals. Elizabeth Schachte explored how her course-based research experiences shaped her academic and professional path. Austin Murray reflected on motivation and persistence, as well as the impact of relationships with mentors and collaborators.

A number of episodes examine mentors' perspectives in facilitating undergraduate research and inquiry experiences. For example, Dr. Marisa Nicosia, Dr. Heather Froehlich, and Christina Riehman-Murphy discussed their collaboration leading a historical recipe research project. Dr. Pauline Milwood discussed guiding students through an inquiry experience planning and implementing a pop-up restaurant. Dr. Christopher Shelton, along with student Remington Orange, reflected on their mentoring relationship.

Although we are committed to exploring and advancing research and inquiry for undergraduates in our podcast, we are not exclusively focused on it. Other episodes feature graduate students, faculty, and others whose reflections have relevance for researchers at all levels. Undergraduates may also specifically benefit from glimpses into graduate and postgraduate research experiences as they consider their own paths. For example, Jack Daly discussed his process researching folklore as a PhD candidate and, in so doing, explored how to use an inquiry mindset to examine everyday life. In reflecting on her trajectory from undergraduate to distinguished professor, Dr. Linda Treviño showcased the integral roles of curiosity, motivation, and open-mindedness in research.

Research Practices and Attitudes Central to Guests' Experiences

Because our conversations focus on the process of our guests' experiences in order to promote transparency and accessibility, we are able to uncover the skills, behaviors, and attitudes central to their work and paths. Using our observations during recording sessions and reflections on episode transcripts, we have identified three major themes to describe practices and attitudes related to undergraduate research: spirit of inquiry, decision-making, and conceptualization of research.

The spirit of inquiry theme includes practices and attitudes that propel researchers forward, especially in the face of challenges or barriers: creativity, curiosity, confidence, and perseverance. Guests described these practices and attitudes time and again, often referring to them as hallmarks of their experiences. In some cases, guests described calling on these practices and attitudes to support their success, and in other cases described them as cultivated through their experiences, whether intentionally or incidentally.

Our conversation with three engineering undergraduates—Mary Wilson, Tobey Field, and Ethan Davies—helps illustrate the spirit of inquiry theme. These students talked about research in multiple contexts: as a team in a summer research intensive program, as part of a real-world project for their Engineers without Borders club, and in preparing for their senior theses. Their reflections emphasized how scaffolding their research experiences helped them build skills and knowledge that they could transfer across contexts, incrementally building confidence. They also noted how research experiences challenged them in ways classroom experiences did not, teaching them to persevere through setbacks and challenges and be creative and collaborative problem solvers.

Take the following excerpt from Field's remarks:

"I feel like in the classroom, when you're given an assignment, you know what to do. You know ... this is the answer, right? And then when you start your [research] project ... well, there's no answer. I'm going to have to figure it out on my own. And it's kind of just that I have all this free will... They prepared me with the fundamentals, but it's up to me to use those to actually find the solution."

Field's reflection signals the creativity and curiosity that helped him build confidence and persevere in the research environment.

The decision-making theme includes practices and attitudes that help researchers manage change and embrace the unexpected, even failure: navigating uncertainty, self-awareness, and metacognition, or the ability to plan, monitor, regulate, and transfer learning. Many guests described how their research and inquiry experiences helped them develop comfort with uncertainty—for example, when they hit roadblocks, when they had to pivot or start over, or when their understanding of their goals or motivations shifted. Some guests noted that self-awareness and metacognitive skills helped them navigate uncertainty, which helped them later recognize that disappointments and failures could actually be productive opportunities.

Our conversation with Marisa DeCollibus, in which she discussed her experience moving from high school through undergraduate work to PhD, helps illustrate this theme. DeCollibus provided a glimpse into the range of uncertainties in and around her undergraduate research career. She developed an interest in mindfulness early on and wanted to keep exploring the topic as an undergraduate. However, no one at her institution worked in this area. With the guidance of mentors in adjacent areas, she found a way forward with an internship and a mentored research project. DeCollibus applied for prestigious fellowships but was wait-listed, thereby disrupting her post-graduation plans and seeding self-doubt. She went on to work as an advisor to high school students, something she hadn't planned on doing but that opened up new ideas and avenues. It turned out to be a highly influential experience and directed her PhD path.

The following excerpt from DeCollibus' remarks illustrates this:

"I might always feel a little unsure. I might always feel a little uncertain. But the sooner I get comfortable with that, the better."

These comments signal her capacity for reflection and self-awareness, pointing to the value of these skills for helping her process uncertainties she encountered as productive.

The conceptualization of research theme includes practices and attitudes that reflect researchers' perception of the core ideas or principles of their research experiences, especially around research as an iterative process and the value of mentoring. Guests frequently communicated their understanding of research as a cyclical process characterized by repetition, adaptation, and evolution, rather than a linear process that moves only predictably and sequentially. They also frequently conceptualized undergraduate research as an experience in which learning about process should be prioritized, even over learning about content. Guests also reflected on the impact of good mentorship on their understanding, describing relationships with mentors as cornerstones of their work and journeys.

Our conversation with Rishika Patil helps illustrate practices and attitudes with respect to the conceptualization of research theme. When we spoke with her, Patil was majoring in biochemistry and molecular biology with three years of research experience. Immediately upon starting her first year, Patil applied to join a lab. She noted that she came into college wanting to do research in microbiology and infectious disease but decided to put her specific interest aside because she realized that she didn't know enough about how research worked. She decided it was more important to pursue a position in a lab with a strong mentoring culture.

The following excerpt from Patil's remarks illustrates this theme:

"I've just learned so much about being patient with things. I think we're in a very results-driven time ... And that's just not how research always works. You're essentially asking questions that no one knows the answers to ... so it's kind of like appreciating the process of that rather than just trying to get to an end product. But using every little bit of information that you get on the way to contribute to something ... That's something that I underestimated going into research."

Her comments signal how her experiences helped her transform her perspective to conceptualize research as a process.

As we reflect on the conversations we've had with guests and the themes that are central to their stories, what we're really seeing are the soft skills (also known as power skills or durable skills) and habits of mind that are integral to and intrinsic in the practice of undergraduate research. Consistent with the literature, these stories cast a spotlight on the significance of soft skills and habits of mind to the orbit of undergraduate research engagement, growth, and impact.⁶ Our guests' reflections also show that they themselves considered these as significant outcomes in their own right, which they have often been able to transfer into different contexts. Importantly, then, our guests' stories show how they recognize their research and inquiry experiences as fruitful for practicing and developing such skills, practices, and attitudes.

Storytelling for Undergraduate Research Teaching and Learning

Our guests told us time and again how much fun it was to talk in this reflective way about their experiences and, at times, how they had new realizations about their experiences by doing so. That is to say, by creating space for our guests to reflect on the process of their work, many were able to extract more meaning from it. We believe this is an opportunity for enhancing pedagogy around undergraduate research—that carving out opportunities for intentional, guided reflection can deepen the experiences' impacts for these students.

The behind-the-scenes views our guests offered personalized research and inquiry experiences. By increasing transparency and humanizing and normalizing these experiences, including their challenges, sharing stories in this way extends the impact of these experiences beyond individual researchers to a broader audience. Given the utility of storytelling as a tool for building community and belonging,⁷ we see sharing the process, not just the product, of these experiences as key to supporting and growing undergraduate research teaching and learning. *~*

Notes

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3. Katelyn M. Cooper et al., “Cultural Capital in Undergraduate Research: An Exploration of How Biology Students Operationalize Knowledge to Access Research Experiences at a Large, Public Research-intensive Institution,” *International Journal of STEM Education* 8 (2021): 6, <https://doi.org/10.1186/s40594-020-00265-w>; Heather Haeger et al., “Creating More Inclusive Research Environments for Undergraduates,” *Journal of the Scholarship of Teaching and Learning* 21, no. 1 (2021): 320–62, <https://doi.org/10.14434/josotl.v21i1.30101>; Duhita Mahatmya et al., “Pathways to Undergraduate Research Experiences: A Multi-institutional Study,” *Innovative Higher Education* 42, no. 5 (2017): 491–504, <https://doi.org/10.1007/s10755-017-9401-3>.
4. Jennifer Jarson and Kate Morgan, “From Concept to Creation: Shaping Inquiry Culture on Campus with a Co-curricular Panel,” *C&RL News* 82, no. 7 (2021): 306–09, <https://crln.acrl.org/index.php/crlnews/article/view/25034/32909>.
5. Browse available episodes on Spotify or Apple Podcasts or search for *From Concept to Creation: Uncovering the Making of Scholarly and Creative Accomplishments* on these platforms.
6. Corwin et al., eds., *Confronting Failure: Approaches to Building Confidence and Resilience in Undergraduate Researchers* (Council on Undergraduate Research, 2022), <http://files.eric.ed.gov/fulltext/ED621426.pdf>; Nicole Ferrari et al., “Research Experiences for Students: Interdisciplinary Skill Development to Prepare the Future Workforce for Success,” *Materials Research Society Symposium Proceedings* 1762, <https://doi.org/10.1557/opl.2015.154>; Anne-Barrie Hunter et al., “Becoming a Scientist: The Role of Undergraduate Research in Students’ Cognitive, Personal, and Professional Development,” *Science Education* 91, no. 1 (2007): 36–74, <https://doi.org/10.1002/sce.20173>.
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