

# EXECUTIVE SUMMARY

## INTRODUCTION

“Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results.”

– John Dewey, *Democracy and Education*, 1916

For the past several decades, collaborative projects have received attention as a “high-impact educational practice” — defined by the American Association of Colleges and Universities (AAC&U) as teaching and learning approaches that provide “significant educational benefits for students who participate in them” (Kuh, 2008).

More recently, the Boyer 2030 Commission Report characterized equitable access to high-impact practices as an essential component of “education that broadens horizons, stimulates curiosity and involves discovery of fields of knowledge, ways of knowing, and perspectives” (The Boyer 2030 Commission, 2022). As yet, however, the use of collaborative projects (and other high-impact practices) often remains at the periphery of university-level curricula.

In this compilation, we offer 17 case studies that illustrate how a diverse array of higher education institutions are delivering collaborative, project-based learning. Taken as a whole, these case studies provide practical information and insights on program design, best practices, common challenges and lessons learned. We hope that this set of programmatic overviews will spark innovation at other colleges and universities, aiding the spread and scaling of collaborative projects across higher education.

By showcasing how institutions of higher education can introduce collaborative projects through a variety of delivery models — including courses, capstones, interdisciplinary majors, co-curricular programs, labs and community-driven programs — we offer a range of avenues for experimentation. To aid universities at various stages of program development, these cases feature both small-scale pilots as well as large-scale established programs that have been running for years, and in some cases, decades.

We begin by offering some reflections on why colleges and universities should care about collaborative projects, what constrains more rapid adoption of the model, and how higher education institutions can foster best practices and sidestep common challenges.

## ORIGINS

In June 2023 the Bass Connections program at Duke University convened a [symposium on collaborative, project-based learning in higher education](#). Over two days, 120 faculty members, deans, vice provosts, administrators and postdocs from 45 institutions gathered to learn from one another about this dynamic approach to learning. They came from large research universities, liberal arts colleges, urban and regional universities, and community colleges.

During this action-oriented symposium, participants explored how different kinds of higher education institutions are embedding collaborative, project-based work into student experiences. We grounded these discussions in practical examples, seeded by the case studies presented here. On the second day of the symposium, participants worked in small groups to develop plans for piloting, adapting, scaling and/or assessing project-based learning programs at their institutions.

## A NOTE ON TERMINOLOGY

These cases center around what we have termed “collaborative, project-based learning.” As you will find in exploring the cases below, educators deploy this pedagogical approach in many contexts and through various strategies. As a result, we have no interest in being dogmatic about definitions. Indeed, readers of these cases will observe that case study authors describe these innovative educational programs in diverse ways, reflecting their multifaceted nature. However, because the scholarly literature on education often refers to “Project-Based Learning” in a more narrowly defined way, we want to clarify that our use of this term refers to the general use of projects to aid student learning.

We think of collaborative, project-based learning as a practice structured around team-based inquiry, analysis and communication that extends across a significant period. Such experiences often bridge the classroom, library and lab, on the one hand, and the world beyond the university, on the other, giving students a chance to bring their academic knowledge and skills to bear on complex problems under the mentorship of faculty, graduate students and, in some cases, community members.

## WHY COLLABORATIVE PROJECTS?

A comprehensive literature review by Guo et al (2020) concluded that project-based learning improves students’ motivation, grasp of content knowledge and capacity to deploy learning strategies, while fostering a range of important skills and leading to higher quality outputs. Similarly, the Buck Institute for Education has found that project-based experiences deepen student learning, cultivate important skills and promote a sense of purpose (Buck Institute for Education, n.d.). Other meta-analyses focused on project-based learning in STEM fields have

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found positive impacts on academic performance, retention of content knowledge, team skills and employability (Balemen & Keskin, 2018; Hart, 2019; Ralph, 2016).

When appropriately scaffolded, collaborative projects help students grasp the relevance of their education and encourage students to take greater ownership of the learning process, boosting their self-confidence and sense of efficacy. This approach motivates and inspires learners, leading to heightened engagement and deeper comprehension of the issues at hand.

Participation on a project team also builds transferable skills highly sought by employers, making collaborative projects a valuable pathway into careers. As students work together to identify problems, shape research questions, develop plans and craft potential approaches to address complex issues, they deepen their capacity for critical and creating thinking. By working alongside peers and contributing to a shared goal, students gain valuable experience in teamwork, communication and time management. In addition, projects designed around community-engaged work can foster a strong sense of belonging, increasing students' comfort level in sharing their perspectives and bringing their whole selves to the learning process.

Finally, collaborative projects can be hugely beneficial to participating faculty, who often feel energized by the opportunity to engage with students in new and authentic ways. Such projects allow faculty to integrate students into their own work by having them tackle research questions over a sustained period, and often entail an extension of scholarly inquiry to applied contexts beyond campus. Projects centered around interdisciplinary challenges can also enhance a faculty member's networks and introduce them to new research directions, methods and partnerships.

Given the benefits to both students and faculty, we see a strong case for deploying collaborative projects more broadly across higher education. Although collaborative projects are just one of several high-impact practices, and there are many contexts in which collaborative projects make less sense as an educational approach, we contend that they should be strongly represented in any higher education curriculum, for undergraduates and graduate and professional students alike.

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## OBSTACLES

Although collaborative, project-based learning has long been recognized as a valuable pedagogical tool, its adoption in higher education remains limited. On many campuses, the emergence of this approach often reflects the initiative of an individual faculty member rather than a curricular strategy. Where this approach occurs more systematically, it is typically connected to a professional degree program, such as business administration or engineering management. So, what is holding us back from widespread deployment of collaborative projects?

### Several factors contribute to this reluctance:

- First, the collaborative nature of such projects requires a significant shift in mindset by educators. Faculty members must embrace a less didactic and more facilitative role and devote careful attention to the scaffolding of effective teamwork. This transition can be challenging, as it involves relinquishing some control over the learning process and trusting students to take greater ownership of their education. Faculty also must reduce formal content coverage to make room for project work. As the scope of knowledge in every field continues to expand, many college instructors feel a pull to cover as much ground as they can.
- Second, collaborative projects often involve coordination with external partners or clients, which can add logistical complexity and administrative demands. This extra workload can include negotiating partnerships, managing travel arrangements and addressing potential risks. Collaborative projects can also be costly, requiring resources for travel, technology and sometimes student stipends (either for TAs or, in the case of summer non-credit programs, compensation for participating students).

Taken together, these challenges can deter individual faculty members who might be interested in experimenting with collaborative projects or give pause to administrators who are contemplating a pilot or the possibility of scaling programs. Our case studies offer practical guidance for overcoming these common challenges.

## CASE STUDY COMMONALITIES AND DIFFERENCES

The 17 cases presented here illuminate a set of consistent practices, while highlighting variability in approaches that will allow other universities to consider adaptations that fit their circumstances. We have distilled salient trends here and, in the next section, provide a table that offers key features of each program at a glance.

## COMMONALITIES

**Collaboration around an intensive project takes center stage.** Regardless of whether the program includes didactic or other pedagogical styles, the project serves as the primary vehicle of student exploration, inquiry and learning.

Most programs are **multi/inter/trans-disciplinary**, although a few programs are centered within just one field or division of knowledge. A number of case study authors reflect on the value of integrating different disciplines when tackling complex research questions and of pushing students to learn how to work across intellectual, methodological and practical boundaries.

All programs offer some form of **academic credit** for participation during the academic year, with some programs offering paid roles for graduate student mentors, as well as for students participating during the summer.

Almost all of these cases highlight **challenges related to faculty effort**. Although most programs operate as embedded courses for which faculty receive at least fractional teaching credit, these courses tend to include comparatively small numbers of students and often reside outside of participating faculty members' departments. As a result, faculty frequently hear concerns from unit leaders about their capacity to step away from departmental obligations. Numerous programs also report that faculty express apprehensions about the level of time that collaborative, project-based learning takes compared to the preparatory and instructional effort required for a typical course.

Almost every program includes **external partners**. Case study authors stress that projects with community partners provide an authentic and motivating opportunity for students to grapple with the application of knowledge and produce meaningful work. They also highlight the crucial importance of equitable partnership, and the need for a significant investment of time to establish the trust that makes equitable partnership possible.

Many programs emphasize the importance of **high-quality training** for faculty and graduate students to provide grounding in how to scaffold and manage project-based, community-engaged inquiry. Similarly, some programs have developed **mechanisms to foster effective teamwork**, including preparatory coursework, program-wide guidance around best practices and resources for troubleshooting common team challenges.

A number of programs support structured **opportunities for students to communicate their research findings** to an array of audiences, ranging from works-in-progress presentations and end-of-year showcases or expos to digital archives, exhibits and publications.

## NOTABLE DIFFERENCES

These case studies showcase a **wide range of models**, including standalone courses, university-wide co-curricular programs, required elements of a specific major or degree program (e.g., capstone) and embedded dimensions of an overall university curriculum.

The **scope** of these programs ranges from 10 students a year to more than 4,000 students. In the case of boutique programs, a passionate faculty member or an individual academic unit has championed innovation. Larger programs tend to be managed by a university-wide administrative office.

The majority of programs source **project ideas from faculty, although often in consultation with community partners**. A few programs source ideas directly from external partners or allow students to shape project ideas more directly.

**Project duration** can vary greatly across (and even within) programs, ranging from six weeks in some instances to multiple years in others. Case study authors consistently note the challenges of supporting robust projects within the confines of a single semester, and many semester-long programs have developed “extension” opportunities through which students can continue their project engagement.

Programs incorporate **varying levels of didactic learning and foundation setting**, with some projects being coupled with full courses, others splitting time between course content and project work, and still others emphasizing project work alone.

Fewer than half of the programs represented here are **vertically integrated** (i.e., involving undergraduate and graduate students, and sometimes staff and/or postdocs, to foster layered mentoring by near peers) and these programs tend to be found in larger research universities.

A small number of programs provide **project funding** to support research and travel expenses, but most do not.

**Academic credit** takes a number of forms. In some cases, participation in a program leads to elective credit. In others, credit goes toward general education requirements or to a major or degree program.

Participation ranges across every **student level**, from first-year undergraduates through master’s and professional students to Ph.D. students.

## THEMES AND INSIGHTS

After reading these cases, talking with attendees at the symposium and tracking the landscape for collaborative projects in higher education over the last decade, we reflect on several important themes for the successful implementation of such efforts.

### SCAFFOLDING AND SUPPORTING EFFECTIVE COLLABORATION

Most people have experienced the challenges of group work in an academic setting. Personality conflicts, an uneven division of labor and a lack of team structure can stand in the way of student learning. Successful collaborative projects require intentional effort to set teams up for success. The programs profiled use a variety of mechanisms to support students, but key elements include:

- **Effective team structure** that ensures team members have clear goals and roles, often including a requirement that teams create a team charter and project plan, with the latter subject to periodic updating as circumstances evolve
- **Open-ended, but well-supported, inquiry** that provides students with structured grounding and intellectual parameters, while eventually extending greater ownership to participating students so that they can grapple with the inevitable ambiguity in an inquiry-based approach
- **Mentorship** from faculty, graduate/professional students and often near peers to help students navigate complex issues constructively

### FOSTERING AND MANAGING COMMUNITY-ENGAGED RESEARCH PROJECTS

As noted, collaborative projects often incorporate applied work with community organizations. This approach can provide numerous benefits for both students and community partners: students develop valuable research skills and cultivate important qualities like humility, empathy, communication and teamwork while producing useful research outputs.

The featured colleges and universities draw on a variety of approaches to source community-engaged research projects, with a common emphasis on conducting research “with” or “for” community partners rather than treating them as subjects. Some programs solicit community projects through applications, while others rely on existing faculty relationships or outreach from community partners. Regardless of the sourcing method, program leaders emphasize that building and maintaining strong, longer-term relationships with community partners is crucial, even as faculty and staff may change.

The need to balance student learning with community expectations presents important challenges, especially given the semester-based structure of many university programs. Some programs address this trade-off by holding pre-project meetings to establish expectations and then provide regular updates throughout the semester. Others rely on faculty to manage relationships while offering support and guidance.

To ensure ethical engagement, programs often incorporate research methods courses, provide faculty training and furnish participating students with training in community engagement.

Programs typically face the question of whether, and if so, how, to compensate community partners for their time and engagement. Some programs pay small honoraria to community partners. Larger-scale research initiatives might include partner funding in grant proposals. All programs emphasize the need to reduce time burdens on community partners.

### **SCALING AND EMBEDDING PROJECT-BASED LEARNING IN THE CURRICULUM**

One can now find examples of collaborative, project-based learning on just about every college and university campus. Despite the rising number of efforts at project-based learning cropping up across higher education, it remains challenging to bring curricular structures to scale. This is particularly true for interdisciplinary programs and co-curricular initiatives, as universities largely remain structured around disciplinary departments and faculty teaching expectations rarely allow for effort outside of one's department.

As it stands now, the most sustainable and affordable way to increase collaborative, project-based learning is to embed such offerings into the curriculum as regular courses, particularly as required introductory courses or signature capstone experiences. This practice also aids in the recruitment of students. However, curricular integration, particularly for interdisciplinary programs, can require significant effort and persistence. Universities and departments must be willing to adapt their structures and processes to accommodate interdisciplinary projects. Adjustments may involve changes to funding models, teaching credit, assessment and course credit policies.

Even when a college or university builds such experiences into curricular requirements, it can be difficult to encourage faculty to participate, given the time commitments to develop projects, mentor students and see projects through to their conclusion. Universities can support faculty by fostering a culture of collaboration to facilitate best practice sharing, reducing administrative roadblocks around issues such as transportation and engaging with community partners, and providing teaching assistants to support the mentoring of student teams.

Extending project-based learning to graduate education can further enhance the impact of these programs. By involving graduate students in projects, universities can create a more integrated learning experience and deepen the capacity of those more advanced students



to work on teams, with positive impacts on their ability to succeed in a variety of careers. A growing number of programs combine students of different levels on teams, with associated graduation of responsibilities.

Ultimately, efforts to scale and embed collaborative projects hinge on the ability of champions to communicate the value of these programs. Higher education could benefit from a more consistent methodology to assess quality across programs and track longer-term outcomes for students. The development and refinement of shared approaches to assessment has the potential to better illuminate best practices in the field and make the case for a greater investment of resources (financial or otherwise) in these practices.

The variety of approaches to collaborative, project-based learning represented in these case studies reflects remarkable creativity on campuses across North America, as well as careful adaptation to local circumstances, opportunities and constraints. We hope that these cases provide readers with inspiration and practical insights into how to adapt this mode of education into their university's undergraduate and graduate programs.

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