



Teaching & Learning Tool Suite

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Software

Software & Content

Accelerate Blue Foundry -
2025/Physical Sciences

Further information

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Accelerate Blue Foundry - 2025 (Physical Sciences)

OVERVIEW

The **Teaching & Learning Tool Suite** aims to foster and scale a portfolio of cutting-edge, research-backed educational technologies. The products for initial launch – **GradeCraft**, **Spire**, and **Tandem** – have all been developed at U-M, designed to address real-world challenges in higher education, and iterated based on continuous user and educational research. **Teaching & Learning Tool Suite** will provide all the necessary services to bring these technologies to people and organizations around the world.

DESCRIPTION

GradeCraft, Tandem, and Spire are mature, well-tested software tools that have been widely used within the University of Michigan. Collectively, they set a new standard for technology to foster accessible, equitable, and engaged learning environments. Designed and iterated within the context of higher education, these products are ready to be scaled to environments like corporate learning, in addition to being ready for licensing broadly across educational institutions.

GradeCraft asks instructors to reimagine the role students are empowered to play in their own learning. Based on *gameful design*, a new approach to teaching inspired by the deep engagement observed in gamers, GradeCraft lets students carve individualized paths through coursework by choosing assignments, tracking progress through a dynamic grade predictor, and earning badges or leveling up, all underpinned by data-rich feedback. Rather than simply layering game elements onto traditional courses, GradeCraft helps instructors redesign their

entire curricular structure to foster autonomy, risk-taking, and personal growth.

- [What is Gameful Pedagogy?](#) (Website)
- [Gameful Learning: Leveraging the Learning Sciences to Improve the “Game of Learning”](#) (Instructional article)

Team-based learning is both extremely common in education and rarely taught. **Tandem** delivers adaptive, data-driven teamwork support to boost communication, inclusion, and productivity. Tandem helps instructors form better teams from the start, keep track of their collaboration and development, and equitably assess their outcomes—especially in large classes. Starting with a baseline survey on student work styles and team preferences, Tandem helps instructors identify signals in the noise of data from weekly check-ins, regular lessons on teamwork, and self and peer assessments. Tandem uses adaptive algorithms to deliver tailored feedback directly to students while providing actionable analytics to instructors to support coaching and intervention at just the right moment.

- [Tandem tool helps students work better, participate more equitably in teams](#) (Michigan News article)
- [How Tandem Makes Teamwork Easier](#) (YouTube video)
- [Tandem receives Trailblazer Award from WISE for supporting equity in STEM](#) (Blog post)
- [Supporting Equitable Team Experiences Using Tandem, an Online Assessment and Learning Tool](#) (Research paper)
- [Student Teamwork Experience in a Hands-on Robotics Course](#) (Research paper)

Employers tell us that new university graduates struggle to *describe* what they’ve learned throughout college in job interviews, and *translate* soft skills that they have developed in school to the professional environment. **Spire** creates space for students to identify knowledge they want to develop and skills they want to learn, practice them throughout their university experience (both in and out of the classroom!), and craft a narrative of their growth and achievements to stand out to potential employers.

GradeCraft, Spire, and Tandem support educators in making transformational changes, embedding behavioral science, data analytics, and motivational design into the DNA of any learning environment.

VALUE PROPOSITION

- **Designed with Motivation in Mind:** GradeCraft and Spire empower students to take ownership over their course and university learning experiences, while Tandem teaches them crucial on-the-job skills and provides targeted coaching. Together these platforms offer holistic, personalized support to ensure students make the most of their time in college, and thrive as they enter their careers. *We believe all three platforms have significant opportunities to support learning in professional/corporate contexts as well, dramatically increasing the future market potential.*
- **Rich Analytics & Dashboards:** All three platforms are instrumented with learning analytics and detailed tracking utilities, enabling real-time reporting of actionable insights at the individual, team, and course level. We’re committed to sharing analytics directly with students to further support their decision-making and sense of connection to their learning community. Data also help instructors see patterns of disengagement, inequity, and student struggle visible and addressable in real time.

Explore other available products test at [University of Michigan](#)

- **Engaged, Inclusive, and Cross-Context Learning:** These three platforms create learning environments that foster student motivation, support equitable outcomes, build meaningful connections, and set students up to thrive in their careers. Together, they address some of the biggest pain points in 21st-century education, fostering measurable improvements in both learning outcomes and student engagement.

TECHNOLOGY READINESS LEVEL



MARKET OPPORTUNITY

GradeCraft, Tandem, and Spire are all robust products that have shown they can help educators create learning environments that are more engaging, equitable, and successful. In the face of a tough job market that places tremendous emphasis on demonstrated skill development, institutions that are able to support their students with personalized learning and soft-skill development are better positioned for student achievement and retention.

These products have been used broadly at U-M, but given the challenges of making them accessible to other institutions while still internal-to-U-M, we have not nearly tapped the accessible market for these products. These projects have already participated in Customer Discovery, and have ready-to-go marketing materials, tested product price points, and market data regarding customer price sensitivity.

Finally, the potential for each of these products to expand into the much larger industry of corporate learning and supporting professional development broadly is substantial. Companies large and small struggle with helping their employees grow. While teams are frequent vehicles for cross-functional work, supporting and managing them in a manner that fosters personal accountability is a particularly challenging pain point. Tandem was designed from the beginning with the idea of supporting teams in any industry, including health care, business, retail / hospitality, and engineering. GradeCraft is already being explored as a platform to house adaptive content for educators. Spire has tremendous potential to act as the core infrastructure for HR and talent management teams. All three products have significant market opportunities beyond the walls of academia.

INVENTORS (5):

GradeCraft, Spire, and Tandem were developed and incubated at the University of Michigan's Center for Academic Innovation.

- GradeCraft and Spire: Barry Fishman, Cait Hayward, CoE, Ross, Center for Academic Innovation
- Tandem: Laura Alford, Stephanie Sheffield, Robin Fowler