Entrepreneur & Innovation Exchange
Published online at EIX.org on April 17 2026
DOI: 10.32617/1364-69e2427fd0d0d

The Double-Edged Sword of Real-World Projects in Entrepreneurship Education

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KEYWORDS: Teaching Methods, Student innovators, Higher Education.

Real company challenges raise the stakes for students—but without the right structure, they can undermine learning. Here's what educators and partners need to get right.

Open innovation challenges are now common in entrepreneurship education. Students work on a real problem from a real organization, practice professional communication and teamwork, and test ideas against constraints that are hard to simulate in a traditional lecture-style classroom environment. Companies receive new perspectives and early concepts, while universities strengthen relationships with industry and increase the relevance of coursework.

This student experience is often assumed to be positive given that the work feels more "real." My recent study shows a more complex picture. While realism certainly can increase motivation and learning, it can also increase stress, confusion, and frustration. The good news is that the difference often comes down to design and delivery details that educators and company partners can control. This article explains those findings and offers practical guidance for educators and partner organizations.

What We Studied

We examined how students perceive their experience of participating in an open innovation challenge. A real company brought a real business problem into the classroom, and student teams worked on solutions, creating knowledge transfer between the university and the firm and giving students a real context to apply their skills. The challenge was designed around a problem-based learning approach, meaning that students worked on an ill-structured problem with no single correct answer. Learning happens through inquiry, iteration, and application. Students decide what information they need, gather what they can, make assumptions when they must, and justify decisions with evidence. The teacher acts as a facilitator guiding the process rather than delivering a single path to one "correct" answer. We wanted to see if the challenge was designed to help students turn realism into stronger judgment and usable learning.

The setting was a fourth-year undergraduate course, entitled Creativity and Innovation, within the Business Administration and Entrepreneurship degree at EDEM Business School in Valencia, Spain. The course used a two-phase structure. The first phase built a foundation in innovation management. The second phase centered on the open innovation challenge and became the primary vehicle for learning and assessment.

The Company and Its Challenge

The collaborating company is referred to as Machine Insights to protect confidentiality. The company is an international firm headquartered in Alicante, Spain, with subsidiaries in China and the United States. It employs approximately 80 people and operates in the agri-food industry, providing inspection and sorting technologies. It reported 2021 revenues of $14.1 million, has sold more than 1,500 machines to over 700 clients across 35 countries, and invests about $1.5 million a year in research and development.

Machine Insights partnered with the course because it wanted practical, commercially oriented thinking about a resource it already had, namely data generated from its machine vision technologies. The challenge prompt asked students to propose ways the company could monetize and exploit data generated from those technologies. This type of prompt is intentionally open. It pushes students beyond a single product idea and into questions that shape venture design and corporate innovation. A concrete way to understand the task is to

picture an industrial inspection system that sorts agricultural products using cameras and computer vision. That system generates data about defects, quality grades, throughput, downtime, and operating conditions. The challenge is to design a value proposition and a business model that makes the data valuable to a paying customer. That forces decisions about who pays, which operational decision improves, what is delivered, how adoption works, and how value is proven in a skeptical business buying process.

How the Course Unfolded

Students were divided into teams between 4-6 people and applied the design thinking method of:

Empathize: This initial phase focuses on researching and observing users to gain a deep understanding of their needs, challenges, and motivations.

Define: In this stage, research findings are synthesized to create a clear, actionable problem statement or "point of view".

Ideate: Teams transition to brainstorming, generating a wide range of creative and innovative solutions without judgment.

Prototype: This experimental step involves building quick, tangible, and low-fidelity versions of the best ideas to explore potential solutions. For example, in the context of the challenge, prototypes could include a mock interface that shows what an operations manager would see each morning, such as a dashboard with yesterday's defect rates by product type, trend lines over time, and alerts when quality drifts beyond a threshold.

Test: The final stage involves gathering feedback from real users to validate the solution and identify areas for refinement.

There was an additional emphasis on learning through reflection and iteration. Here, design thinking worked as a sequence for understanding the company context and user needs, sharpening the business problem, generating possible responses, building an early representation of the solution, and exposing that early version to feedback and revision.

Students visited the company headquarters early in the challenge, receiving an overview presentation and a tour to ground their work in the firm's context, products, and operations. Students also received one formal support session from a startup in the private entrepreneurial ecosystem in which their university is located, with the startup specializing in data mining and analysis. The challenge company, on the other hand, provided additional opportunities for students to ask questions during the process, with communication channelled through the professor so that questions could be coordinated and answered in a consistent way across teams. Students submitted their follow-up questions to the professor, who reviewed them for clarity, relevance, and alignment with the project's specific business goals. This vetting process allowed the professor to guide students in refining their inquiries, ensuring they were actionable and respectful of the company's time, while coaching the teams on how to bridge the gap between their initial research and the firm's actual user needs. By filtering and sharpening these questions beforehand, the professor facilitated a more productive dialogue that directly improved the quality of the iterative feedback loop. Key deliverables throughout the course included a presentation of a prototyped solution to the company and a written report. The report functioned as a portfolio-style artifact that documented the reasoning, the process, and the final proposal.

Gathering the Evidence

The main data source was written student reflection, completed at the end of the session using Microsoft Forms. We asked students to describe what they learned, and the advantages and disadvantages of working with a real company. That structure is useful because it makes room for mixed experiences rather than nudging students toward only positive narratives.

Additional data were used to strengthen the analysis. These included informal conversations during and after sessions, assessments of student outputs from both the professor and the company, and end-of-course focus groups, with each team lasting about 15 to 20 minutes. We analyzed the student feedback using a bottom-up approach (known as the Gioia method), where we first captured their comments in their own words, then grouped those remarks into eight recurring themes, and finally organized them into three core pillars..

What Students Said

Student perceptions could be grouped into three overall dimensions, reflecting issues of external accountability,

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applied learning, and delivery constraints and team process. The most important overall result is that working with a real company can be a double-edged sword. It can both elevate the work and raise emotional and coordination costs. When the real-world experience is paired with clear structure and support, students tend to describe growth. When realism is paired with unclear expectations or limited access to information, students more often describe stress and frustration.

External Accountability

This dimension captures how real company involvement shaped motivation, emotion, and perceived professional preparation. It includes themes such as unfiltered feedback, seriousness, and preparation for the future. Unfiltered feedback was central. Students described company feedback as direct and different from academic feedback. For some students, direct feedback felt useful because it clarified expectations and exposed gaps quickly. It helped them see what counts in a professional setting -- such as clarity, relevance, feasibility -- and how well claims are supported. Other students experienced the same directness as discouraging, especially when the critique felt constant or focused only on weaknesses.

Students also reported working harder because the task felt higher-stakes. Presenting to a real company made the work feel less like an assignment and more like professional delivery. The upside is higher engagement and stronger standards. The downside is increased pressure, particularly when the technical domain is unfamiliar and expectations are not fully clear.

Applied Learning

This dimension reflects how students experienced learning through application. It includes applied learning, mindset shifts, and stronger understanding through use. Students often described stronger learning because concepts were used rather than discussed. When a team must propose a monetization approach, it must connect multiple concepts that they've learned separately through coursework. Market segmentation, value proposition, pricing, delivery model, and validation become interdependent decisions. The work forces trade-offs. A common learning shift is moving from general statements about data value to a sharper question of how decisions affect each customer, and what evidence would make a buyer confident enough to pay.

Students also described mindset shifts. Some reported growth in comfort with ambiguity, stronger self-management, and a clearer sense of professional standards. These shifts reflect real-world entrepreneurship, where you can't wait for all the facts but instead make small, experimental moves and adjust your strategy as you learn more. Not all students responded well. Some described pressure and frustration, especially when the domain felt technical and access to information felt limited.

Delivery Constraints and Team Process

This dimension captures frictions that educators and partners can influence. It includes limited access to company information, friction during company interactions, and team dynamics. Limited access to information was a repeated issue. Students reported difficulty understanding a niche technical domain and expressed concern that without deeper company information they could not make realistic proposals. This is a predictable tension. Companies often cannot share sensitive details such as customer contracts, internal costs, or strategic plans. Students, however, are being asked to propose monetization approaches that normally require exactly that knowledge. When that gap is not managed, teams can drift into generic proposals, or they can become overly specific by inventing details to fill missing pieces, which can reduce credibility under questioning.

Team dynamics were mixed. Students described synergy and motivation in teams that collaborated well. They also described idea conflict and less motivation when disagreement was unmanaged. In an open innovation challenge, team process shapes quality, persistence, and learning. When teams convert disagreement into criteria-based decision making, conflict can improve the work. When teams argue from fixed positions, conflict can stall progress and reduce morale.

Best Practices for Open Innovation Challenges

Based on our findings, these six design principles can help educators and practitioners increase their likelihood of success, as perceived from the student perspective, when implementing open innovation challenges in their entrepreneurship courses (see Table 1).

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Table 1. Summary table of key recommendations

Six principles	Key recommendation and lesson learned	Practical example
1. Design for authenticity and relevance	Choose a real company problem that matters, then narrow scope so students can make visible progress within the course. Realism motivates when students can see a workable path through the work.	**Actively discuss the challenge with the company and focus on issues that connect to its current priorities.**
2. Scaffold complexity and manage expectations	Sequence the course so students share tools before facing full ambiguity. Use staged deliverables that force small commitments and iteration rather than one large leap.	Use a weekly build in which each submission unlocks the next step.
3. Support mindset development and feedback skill	Treat direct company feedback as a teachable part of the course. Students need routines for translating critique into decisions and next steps so feedback builds capability rather than discouragement.	Introduce the difference between a growth mindset and a fixed mindset, and help students interpret pressure constructively.
4. Build team process, not just output	Give teams lightweight structure for roles, decision rules, and conflict handling. Team friction is normal in innovation work, but without process it turns into stalled progress and motivation loss.	Create a team charter from the beginning. Make sure all team members are clear about and accept their roles and responsibilities.
5. Strengthen student-company communication	Design communication so information access is predictable and fair across teams. Frustration often comes from unclear expectations, limited access, and uneven contact rather than from the challenge itself.	**Run frequent Q and A sessions with a named company contact. Teams submit questions in advance, questions are consolidated, and answers are shared with all teams. Also consider involving startups specializing in the target challenge area.**
6. Monitor and adapt during delivery	Manage the challenge as an evolving learning environment. Student experience varies, and realism can become overwhelming unless educators adjust guidance, scope, and partner involvement during delivery.	Use short pulse checks every two weeks on clarity, stress, team health, and information access.

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Why This Matters

Open innovation challenges can be one of the most powerful bridges from classroom learning to professional practice. Students experience real pressure, direct feedback, and decision making under uncertainty. They also encounter the challenges of the real world. Technical complexity, limited access to information, uneven interactions, and unmanaged team conflict can turn a live brief into frustration.

The practical conclusion is to pair real company involvement with structure. Provide foundations before the challenge, design fair access to information, teach feedback skills, support team processes, and monitor the experience as it unfolds. When those elements are present, students are more likely to experience the challenge as professional preparation and deeper learning, rather than stress without payoff.

Explore the Research

Donaldson, C. (2025). From classroom to industry: Entrepreneurship students' perceptions of a subject-based open innovation challenge. (https://doi.org/10.1016/j.ijme.2024.101130) *The International Journal of Management Education*, 23(2), 101130.

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