Case Study: Union Pacific Railroad's Transportation Central Module Advances Industry Awareness

TRANSPORTATION CENTRAL

OVERVIEW
The Manufacturing Institute (MI) and Union Pacific Railroad partnered with EVERFI, Inc., the leading “Impact-as-a-Service”® education innovator, to launch the Transportation Central module on the Future Creators (Endeavor) platform. Endeavor—a digital education program giving middle-school students an opportunity to explore careers in science, technology, engineering and math (STEM)—launched the Transportation Central module to bring awareness to students in grades 6-9 about careers that exist in the transportation, distribution and logistics (TDL) industry.

Endeavor provides interactive gameplay experience made available at no cost to students and educators and offers students the opportunity to explore STEM professions they may come across in their everyday life, like the tech-enabled skills to calibrate a connected home or the advanced manufacturing knowledge needed to design and prototype a custom sneaker. Each module exposes students to real-world scenarios that the STEM industry faces and how certain occupations drive impact to advance these industries.

In Endeavor’s recent addition of the Transportation Central module, learners explore the TDL industry through an immersive simulation detailing the events that occur starting when a customer places an order all the way to when the product is delivered at the customer’s doorstep. Through this module, students gain exposure to professions they may not have known that impact their everyday life—like occupations that play a role in a package being delivered to their home—and related challenges that arise throughout the process. Learners use industry best practices to solve common problems along the way.

“The Endeavor platform helps me align to the curriculum and standards that I am already teaching and use real world activities [like Transportation Central] to spread information to our students about real world opportunities.”
DESIGN AND IMPLEMENTATION

EVERFI led the design process to create the Transportation Central module and related curriculum on the Endeavor platform. In partnership with the MI and Union Pacific, EVERFI engaged in a robust literature review to understand the TDL industry and established a set of learning standards appropriate for learners in middle school (grades 6-9). Union Pacific provided subject-matter expertise to review curriculum and supported the development of the final 25-minute module.

Through the intentional design of the module, it introduces learners to topics like Inventory and Logistics; Inventory Management and Other Industry Best Practices; Packaging, Shipping and Handling; and Transportation and Transportation Maintenance. Upon completion of the simulated module, learners leave with an understanding of STEM concepts and can relate these concepts to the industry, in addition to building a connection to the diverse career opportunities offered by the industry.

The Transportation Central module presented a first-of-its-kind for Endeavor being a module that focused on careers not requiring a bachelor’s degree; previous modules had strong sponsorship toward careers that required a bachelor’s degree or more for entry into the field. While the target of Endeavor includes college and career readiness, the Transportation Central module and related careers provides exploration into roles that require credentialing, certificates or associate degrees, in addition to bachelor’s degrees, making the careers aspirational for all students depending on their education goals.

With existing modules on Endeavor and the platform having been in use by school districts already, Union Pacific worked alongside EVERFI to target strategically regions that had existing Union Pacific offices and those with a great need for support of STEM education. As a result, the Transportation Central module appeared centrally in a student’s Endeavor platform to drive increased module participation and industry awareness.

“Endeavor engages students individually, by completing modules within a course, at their own pace. Students are more motivated to accomplish projects in class.”
USER EXPERIENCE
Learners start their experience in the Transportation Central module by completing a five-question quiz to gauge their general awareness of the TDL industry. This initial assessment enables students to familiarize themselves with the vocabulary used in the field and understand things they can expect to learn as they progress through the experience.

Next, students are immersed in the interactive nature of the module where they are introduced to their first task—fixing a broken-down train engine that is delivering materials. As students navigate this challenge, they are introduced to worker profiles that might support the engine troubleshooting process, such as a member of the train crew, transportation manager or maintenance workers. It becomes the student’s task to correctly identify who is responsible for fixing the broken train.

Once the train is functioning properly, students meet additional TDL team members like a logistics manager and an inventory manager who uncover the scope of their role and how it serves in the delivery process. As a student progresses along the module, they are tasked with filling orders for bikes or calculating shipping and packaging costs and correctly identifying the roles that own each task in the process. Soon, though, students come across a secondary challenge of loading the delivery truck and common issues that arise when sorting packages. Students must use their knowledge gained to identify which roles are best suited to address these challenges—and ultimately complete the module to deliver the package.

As students proceed through the module and are introduced to the diverse roles that make the industry function, they interact with characters who are as equally diverse as the careers and processes they learn about. This enables students to envision themselves in these roles and how they might one day participate in core functions that keep the industry moving. As students identify careers of interest, they can add them to their field guide to explore the occupation in more detail afterward and better understand the necessary training and education needed for entry into the career.

Upon completion of the TDL unit, students are asked to reflect on the part of the process they enjoyed the most and take a post-assessment to share more about what they learned throughout the module. By the end, students practice skills like problem solving, collaboration and needing to be adaptable when challenges arise.

“[Engaging with the Transportation Central module] made me respect it more and understand the type of worker they might be depending on the career. [It] made me respect what they do.”
PROGRAM IMPACT
Since 2020, Union Pacific has provided a valuable STEM education exploration curriculum to middle and high school students across the nation’s communities. With the goal of inspiring more young people to pursue careers in STEM through the MI and Union Pacific’s “Careers on Track” initiative, efforts like the Transportation Central module are critical for expanding the reach of people engaged and made aware of STEM careers.

While one effort in the broader initiative, the Transportation Central module has notable outcomes and wide-reaching impact. The module has been embedded fully in the Endeavor platform for all active schools in the U.S. and Canada and has been completed 117,480 times. Union Pacific directly sponsors schools in seven different regions, reaching 4,277 students across 72 schools in 2022 alone. As a result, 41% of students indicated interest in taking more STEM-related classes such as statistics at the completion of the Transportation Central module.

The Transportation Central module enables students to gain a foundational understanding of the skills needed in the industry, connect academic concepts to the world of work and visualize how these skills can come to life—all while leaving them wanting to learn more!

“[Workers in the transportation, distribution, and logistics industry] should be more appreciated because they have to do a lot of work and determine how, when, and who should do it. It’s a lengthy process to deliver a package.”
TIPS & TRICKS FOR SPONSORS & EDUCATORS

As students continue to engage with the Transportation Central module, among other modules on the Endeavor platform, below are key tips and tricks for educators and sponsors as they guide student interest across the TDL industry:

**Before students engage with the Transportation Central module, leverage materials to guide introductory discussions of the immersive experience and the TDL industry.** A team of Learning Experience experts created materials for educators to use when introducing the Transportation Central module—in addition to the other modules on the platform. These materials are available readily for teachers to use to prepare students ahead of module engagement.

**During student engagement with the Transportation Central module, provide complementary TDL resources to support student learning.** Courses are designed in collaboration with industry and content specific subject matter experts, which creates a rich and engaging experience for students that might spark additional interest in the TDL industry. By leveraging resources created by Learning Experience experts, this enables educators to encourage student learning outside of the platform.

**After completion of the Transportation Central module, engage in class dialogue to continue shared learning.** To further the students’ learning, creating classroom space to discuss the modules enables students to debrief what they have learned, gives them the space to ask questions and helps to encourage further learning outside of the platform.

Engage students who elevated interest in the TDL module in their module assessment and provide them with additional information of the industry. Students participate in pre- and post-module assessments, helping to measure their knowledge of the TDL industry. This will help teachers identify any shifts related to attitudes and behaviors of the TDL industry. By reviewing the open-ended feedback fields, teachers can guide student interest appropriately before and after module completion.

For more information, contact Jen White, Director of Student Engagement at the Manufacturing Institute (JWhite@nam.org).

ENTITIES INVOLVED

The Manufacturing Institute: MI is the nonprofit workforce development and education partner of the National Association of Manufacturers and is a trusted adviser to manufacturers, equipping them with resources necessary to solve the industry’s toughest challenges.

Union Pacific Railroad: Union Pacific is one of America’s leading transportation companies, covering 23 states across the western two-thirds of the United States.

EVERFI, Inc.: EVERFI, Inc., is the nation’s leader in delivering innovative technology solutions that transform the way education is delivered to learners and enable the development of 21st century skills.