

2024 ITE Developing Trends: Workforce Development

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In its role as a membership association for transportation professionals, ITE is often focused on promoting professional development and career advancement for its members and supporting and encouraging pre-career education opportunities. However, developing the next generation of transportation professionals has become very complex, and based on workforce shortages, it appears our industry is not doing enough to prepare for the future.

The National Science Board published *The State of U.S. Science and Engineering 2024*.¹ Here are two key takeaways from the report:

- National assessments show a sharp decline in elementary and secondary student mathematics performance since the COVID-19 pandemic. From 2019 to 2022, average mathematics scores of fourth and eighth-grade students dropped to levels last measured approximately 20 years ago.
- Women account for fewer degree recipients in engineering and computer and information sciences than men. Women are underrepresented in the science, technology, engineering, and mathematics (STEM) workforce, accounting for 35 percent of all STEM workers in 2021. Hispanic or Latino, Black or African American, and American Indian or Alaska Native individuals are underrepresented among science and engineering degree recipients at the Bachelor’s degree level and above and among STEM workers with at least a Bachelor’s degree.

ITE has already been taking action to recruit and retain people interested in STEM careers while addressing the concerns highlighted above. Initiatives such as the ITE STEM Committee, a focus on diversity, equity, inclusion, and belonging (DEIB) through the Diversity & Inclusion Committee, and Women in ITE, efforts by the ITE Transportation Education Council, and the combined STEM volunteer efforts across all levels of our organization are already making a difference.²⁻⁵

However, the urgency to focus even further on the critical topic of workforce development continues to rise. In addition to helping interested collegiate students get into the workforce more quickly, we can also provide a pathway for individuals who start their careers in a trade and those who may begin in an adjacent career and are drawn to becoming a transportation professional later in life. Enhanced existing efforts combined with new approaches will be the way to achieve a complete transportation professional workforce.

Create and Attract the Interested Collegiate Workforce

K-12 STEM outreach and education will continue to be a hallmark of creating an interested collegiate workforce. Demand will justify post-secondary education investment in transportation curricula, certifications, and degrees by continuing to collect, exchange, and deliver grassroots best practices in STEM outreach at all levels. Taking a siloed approach will likely not work. That’s why ITE agreed to become a founding member of the Engineering Workforce Consortium (EWC). The EWC was the result of an Engineering and Public Works Workforce Summit hosted by the American Council of Engineering Companies (ACEC), the American Society of Civil Engineers (ASCE), and the American Public Works Association (APWA) in April 2024. The EWC offers the following strong value proposition that matches ITE values.

“By aligning and pooling together the varied strengths, resources, and particular talents of participating organizations, the Consortium can maximize its impact to inform, educate, and advocate for the engineering and public works industries under a common banner and voice.



Figure 1. ITE MASITE Members (Megan McDermott, Jenn Walsh, Melissa Mo, and Dan Eskinder) conducting a STEM education session, April 2024.

As more organizations join the Consortium, the groups' ability to reach new audiences, conduct industry defining research and drive impactful change will only grow."

Another aspect of capturing the interested collegiate workforce is accelerating the path toward practical experience for university students and providing early leadership development opportunities for young professionals.

ITE is supporting young professionals through the development of dedicated resources such as those available through the young professional's resource page on its website and by developing content explicitly intended for young professionals.⁶ The next phase of this work includes establishing a strategic relationship with *Engineers Without Borders USA* (EWB-USA). In the summer of 2024, ITE engaged in discussions to provide opportunities for ITE members within the EWB international and U.S. domestic programs. While details of this partnership are still being finalized, ITE is hopeful that a strategic alliance with EWB-USA will provide opportunities for members to contribute to essential projects around the world, fulfill the strong desire of "giving back" that so many ITE members possess, and provide opportunities for gaining leadership experience.

Accelerating the path toward practical experience for college students includes revisiting the traditional model for gaining real-world experience. In the conventional model, students typically complete 8-12 week internships between sophomore and junior years. However, with students (and parents) increasingly concerned with the rising costs of college education and the need of the industry to have students focused on developing "soft" skills and practical application skills, the need to fully embrace work-based models such as the one being researched by Dr. Tyler Reeb, California State University at Long Beach (CSULB) and shown below in Figure 2 needs to be considered.

Whether the term apprenticeships, externships, or others are used, the model suggests scrapping or enhancing the current approach of short-duration summer internships to provide more balanced academic and practical experience. Implementing this model would allow students to become earners while completing their degree, expose them to employers, provide employers with an exhaustive evaluation process, and accelerate graduate readiness. ITE's Districts and Sections are terrific vehicles for better exploring alternative models, recognizing that one-size-fits-all might not be the most realistic (at least at first).

Recent efforts of the Transportation Education Council support the concept of evolving from the traditional model toward a more balanced approach. Here are three key takeaways from the council's workshop at the ITE Annual Meeting in Philadelphia.

1. Within civil engineering, students get exposure to transportation significantly later than other disciplines, as early general courses are more aligned with other subdisciplines, like structures. There is a need to move transportation content earlier into college curricula, preferably in the second or, ideally, first year.
2. The transportation profession needs to better integrate with other disciplines, particularly planners.
3. The ITE Education Council has surveyed transportation faculty and is surveying the transportation industry (visit bit.ly/4c9ZfMQ to participate). The Council plans to synthesize and publish changes that have occurred over time and contrast perspectives of academia and industry.



Figure 2. Proposed Work-based Learning Model by California State University at Long Beach Center for International Trade and Transportation.

Create Career Pathways for People working in Technical Careers and Trades

The role of community colleges and other technical post-secondary education opportunities continues to grow and attract students. According to the National Science Board's *The State of U.S. Science and Engineering 2024* report, "Many students enter higher education through community colleges, which specialize in providing relatively affordable programs of study, including certificate and associate's degree programs that require two years or less to complete. These institutions prepare students to enter the workforce directly or to transition to primarily 4-year institutions. Community colleges awarded half (50 percent) of the 79,000 Science and Engineering certificates and three-fourths (76) of the 155,000 Science and Engineering associate's degrees awarded by U.S. institutions in 2021." There are 1,462 community colleges in the United States, 175 across Canada, and more than 550 Technical and Further Education (TAFE) Institutes in Australia.

These statistics make it impossible to ignore that ITE needs to be connected to community colleges throughout North America and Australian TAFEs. For example, ITE member and University of Memphis professor **Dr. Stephanie Ivey (M)** has been researching career pathways for several years. Among the results of her work is creating a partnership between the University of Memphis and Southwest Tennessee Community College, as detailed below.

As the boxes in the middle show, the focus is on student readiness and establishing clear pathways toward the next steps. ITE should consider analyzing the opportunity to develop Student Chapters or some variation of student chapters at community colleges and TAFEs.

Attracting and Retaining Mid-Career Professionals

Creating resources for professionals has been a hallmark of ITE. Many existing training and professional development opportunities exist. For example, the ITE mentoring program, Councils and Committees, and webinars can all contribute to attracting transitioning mid-career professionals and retaining existing transportation professionals.

There are always opportunities to do more, and succession planning is an area that could help improve retaining efforts. A focus on workforce development was included as part of the Developing Trends effort of the ITE Councils in 2024. An emphasis on succession planning led to a proposal to create a guide to promote knowledge transfer from experienced professionals to young professionals and transitioning professionals. While still being assessed for feasibility, creating a guide or programming around succession planning could serve many purposes for ITE members.

Greater Memphis Apprenticeship Pathway (GMAP)



What Can You Do?

Members play a vital role in evaluating and shaping new areas of focus for ITE, including workforce development.

- Get active in your District and Section STEM outreach efforts.
- Join ITE Councils and Committees to help chart the future.
- Contact your elected officials, emphasizing the importance of STEM education investment.
- Leverage ITE resources and groups to enhance your knowledge of workforce development issues and possible solutions.

Figure 3. University of Memphis and Southwest Tennessee Community College Career Pathway Partnership

- Become a mentor.
- Actively recruit people from outside our industry and let them know that we have a career pathway toward transportation for them.
- Participate in the Transportation Education Council Survey by visiting bit.ly/4c9ZfMQ. [itej](#)

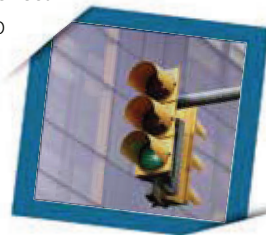
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The ITE Photo Exchange

The ITE Photo Exchange is an exclusive resource designed to foster collaboration and resource sharing among ITE members. This platform serves as a growing database where you can upload, share, and access a diverse range of categorized images, perfect for enhancing your projects and presentations. The Photo Exchange aims to streamline the discovery of relevant visuals while promoting the sharing of knowledge and experiences within our community.

To maintain the integrity and quality of the ITE Photo Exchange, we ask that you only submit images taken by you, ensuring that you are the rightful owner of the content. By participating, you grant ITE and fellow members royalty-free access to use your images in various mediums, such as web, print, and marketing materials. In return, you gain access to a wealth of visuals captured by your peers, expanding your creative resources and fostering a sense of community and collaboration.



The ITE Photo Exchange is accessible exclusively to ITE members.

Access the ITE Photo Exchange here: <https://bit.ly/30rS3U8>