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# Bridging the Skills Gap: Stakeholder Perspectives on Construction Workforce Development in Oklahoma

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The growth of the US construction industry is constrained by persistent labor shortages, an aging workforce, and competition for skilled workers across neighboring regions. These challenges are intensified by misconceptions about construction careers, fluctuating economic conditions, and barriers that limit the entry and retention of new workers. In response, the Oklahoma Workforce Commission adopted a sector-based approach to workforce development that emphasizes collaboration among employers, educators, workforce organizations, and policymakers. This study analyzes data from the Commission's Construction Sector meeting to identify current initiatives, skill gaps, stakeholder perspectives, and actionable recommendations for strengthening the state's construction workforce pipeline. Findings reveal that employers view soft skills, such as communication, work ethic, and professionalism, as greater deficits than technical competencies, signaling a need for adjustment within construction education programs. Participants also emphasized the importance of early career exposure, stronger partnerships between industry and academia, and active employer participation in program development. Systemic policy barriers, including low-bid procurement, funding instability, and academic counseling biases, were also identified as impediments to workforce growth. The study concludes that coordinated efforts across education, industry, and policy domains are essential for building a resilient and competitive construction workforce in Oklahoma.

Keywords: Construction workforce development, skill gaps, soft skills, recruitment strategies

## Introduction

The construction industry is experiencing significant growth nationally and within Oklahoma specifically. The U.S. Bureau of Labor Statistics forecasts the creation of over 250,000 new construction jobs by 2031, alongside a 7% increase in the demand for construction managers (U.S. Bureau of Labor Statistics, 2023). However, this growth is expected in the midst of persistent labor shortages. The Associated General Contractors of America reported a 52% rise in unfilled construction jobs from 2021 to 2022 (Simonson, 2022), creating a critical gap between industry demand and the available workforce.

Oklahoma faces challenges in this context due to its competition with neighboring markets like Texas and Kansas for skilled workers while simultaneously addressing demographic shifts within its construction workforce. The aging workforce crisis, combined with Oklahoma's unique economic and geographic considerations, creates an urgent need for coordinated workforce development strategies.

The labor shortage is driven by multiple factors, such as the older workers retiring and fewer young people entering the field. The industry continues to struggle with common perceptions that characterize construction jobs as physically demanding and lacking career advancement opportunities, pushing many potential workers to seek alternative careers. Economic factors such as fluctuating demand for construction projects have further disrupted workforce stability, with some workers leaving the industry altogether. These workforce challenges have resulted in detrimental consequences for Oklahoma's construction sector, including project delays, budget overruns, and, in some cases, projects that never started. The ripple effects extend beyond individual companies to impact economic development, infrastructure improvements, and community growth across the state.

In response to these challenges, the Oklahoma Workforce Commission has implemented a sector-based approach to workforce development that emphasizes collaboration among employers, educators, workforce development organizations, and policymakers within specific industries. Rather than adopting generic workforce solutions, this approach recognizes that each sector has unique skill requirements, credential pathways, and labor market dynamics. For the construction sector specifically, the Oklahoma Workforce Commission recognizes the need to address both immediate workforce shortages and long-term workforce development. This includes supporting existing workers through upskilling and retention strategies while simultaneously attracting new workers through improved awareness, accessible training pathways, and supportive policy environments.

This paper presents the four interconnected objectives that emerged from the data collected during the Oklahoma Workforce Commission’s Construction Sector Meeting. First, it documents current workforce development initiatives within Oklahoma's construction sector to establish a baseline understanding of existing programs and industry efforts. Second, it identifies gaps in skills and training by examining what competencies employers need that current programs are not adequately providing, distinguishing between technical and soft skills. Third, it gathers diverse stakeholder perspectives on workforce development barriers and solutions, analyzing areas of consensus and variance. Fourth, it develops actionable recommendations for educational institutions that are specific, evidence-based, and measurable to strengthen Oklahoma's construction workforce pipeline.

Information presented in this paper is of particular significance for construction education programs at multiple levels, from secondary Career and Technical Education (CTE) through post-secondary Career Tech and construction management/engineering programs offered at universities.

## Literature Review

The construction industry faces a multifaceted workforce crisis characterized by labor shortages and demographic challenges. The aging workforce presents a critical concern, as experienced workers retire without sufficient replacement from younger generations (Elbashbishy & El-adaway, 2024). This demographic shift, combined with negative perceptions of construction careers among the young generation, has significantly contributed to the current workforce shortage (Lingard et al., 2025). Young people often view construction work as physically demanding, low-paying, and lacking career advancement opportunities, leading them to pursue alternative career paths. Geographic competition further increases these challenges, as workers migrate to neighboring states that provide more favorable economic opportunities and higher wages. The COVID-19 pandemic increased workforce instability, causing some workers to permanently exit the industry. Additionally, the decline of vocational education programs in secondary schools has significantly reduced the pipeline of skilled workers, creating a widening gap between the growing demand for construction workers and the availability of skilled workers to meet that demand.

Educational institutions play a critical role in addressing construction workforce shortages through CTE programs, apprenticeship models, and credential pathways (Haviland & Robbins, 2021). However, there is significant debate regarding the relative importance of technical skills versus soft skills in preparing job-ready workers. While technical competencies are essential, employers increasingly emphasize soft skills such as communication, professionalism, and problem-solving as critical factors in hiring and retention decisions (Munir, 2022). The effectiveness of construction education programs depends on their ability to balance both skill domains while maintaining strong industry partnerships that ensure curriculum relevance. Apprenticeship models that combine classroom instruction with supervised on-the-job training have been successful in developing well-rounded workers. Industry-recognized credentials, such as OSHA certifications, serve as important baseline qualifications, though employers often value demonstrated work ethic and practical experience over formal credentials alone when making hiring decisions (Harris, 2025).

Effective workforce development in construction requires coordinated efforts among multiple stakeholders, including educational institutions, industry partners, workforce development agencies, and government entities. State-level initiatives that align education, training, and employment services have shown promise in creating coherent career pathways (Koehler et al., 2023). Public-private partnerships enable resource sharing and ensure that training programs respond to actual labor market needs rather than outdated assumptions. High school outreach programs that expose students to construction careers through hands-on activities, site visits, and mentorship can counter negative stereotypical perceptions and spark interest among younger students before they make career decisions (Carrasquillo et al., 2017). Alternative pathways that do not require traditional four-year degrees provide easy entry points to the workforce for diverse populations. Successful models focus on early career exploration and stackable credentials that support incremental skill development. They also rely on strong employer engagement in curriculum design and delivery. In addition, they include support services, such as transportation, childcare, and financial assistance, to mitigate barriers that limit access to training.

## Methodology

The Oklahoma Workforce Commission employed a participatory workshop design to gather stakeholder input on construction workforce development challenges and opportunities. This interactive approach utilized the Mentimeter digital polling platform, which enabled real-time data collection and encouraged candid participation from all attendees regardless of their affiliation. The workshop had 52 attendees representing various stakeholder groups related to Oklahoma's construction workforce ecosystem. Attendees included representatives from large general contractors and specialty trade contractors. Participants also included representatives from universities offering construction programs and from the Career Tech system, which provides technical education at both the secondary and post-secondary levels. Industry associations, such as the Associated General Contractors of Oklahoma and the Associated Builders and Contractors (ABC), shared their perspectives on workforce trends and policy needs. Workforce development organizations, including local workforce boards and training providers, also participated, sharing their perspectives on employment services, training programs, and labor market analysis.

The Mentimeter platform facilitated unbiased participation by allowing participants to submit responses anonymously via their electronic devices. This anonymity proved particularly valuable when addressing sensitive topics such as regulatory barriers, competitive challenges, and systemic failures towards workforce development. The real-time nature of the polling allowed facilitators to

immediately visualize response patterns, identify areas of strong consensus, and probe deeper into specific issues.

The workshop was structured around four core questions designed to explore the construction workforce landscape:

- Documenting current successful initiatives in education, industry, and community
- Identifying skills gaps in the current construction workforce
- Exploring marketing and recruitment strategies
- Examining barriers within the public workforce system

This comprehensive set of questions ensured that the workshop captured both current-state realities and future-oriented solutions, while giving voice to practitioners who experience workforce challenges regularly in their operations, classrooms, and service delivery.

*Data Analysis*

The study used thematic analysis to examine participants' responses. The process began with coding the open-ended responses, during which the authors identified recurring ideas across all submissions. A frequency review of the responses helped determine which issues were most prominent among participants. The final analysis focused on interpreting these themes to highlight shared challenges and priorities across the stakeholder groups.

## Findings

### *Current Successful Initiatives*

Thematic analysis of stakeholder responses regarding successful workforce development initiatives revealed three primary categories: educational programs and partnerships, industry-led training and recruitment, and community engagement efforts.

*Educational Programs and Partnerships*

This emerged as the most frequently cited area of success. Participants identified strong construction programs at the university level and the state's Career Tech system as foundational strengths. Participants highlighted growing enrollment in construction education, with one participant mentioning: "*College interest is at an all-time high, programs are growing*." Innovative models included reintroducing shop classes into high schools and creating coordinated educational pathways from secondary through post-secondary programs. The emphasis on educational partnerships reflected recognition that formal training institutions remain critical pipeline developers when maintaining strong industry connections.

*Industry-Led Training and Recruitment Initiatives*

This was the second major theme, emphasizing employer-driven solutions. Industry workforce committees coordinate training and recruitment across companies. Participants identified multiple entry mechanisms, including internships, apprenticeships, and structured work-based learning. One

participant emphasized "*Recruiting and hiring of less experienced people*" as a successful strategy, suggesting industry willingness to invest in worker development. Additional initiatives included internal training positions, programs targeting veterans, financial literacy offerings, and employee orientation and retention policies. Participants noted the value of employee referrals and continuing education at company and industry association levels.

*Community Engagement and Relationship-Building*

Multiple participants emphasized stakeholder collaboration, noting "*Coming together to help drive change.*" High school outreach emerged as critical through career presentations, job shadows, and career fairs. One participant mentioned that workforce development requires trust-building with students, families, and communities. Participants noted growing interest among high school students in trades, suggesting sustained outreach efforts are shifting perceptions.

Across the themes, participants emphasized both formal programmatic structures and cultural shifts in how construction careers are presented, indicating that successful workforce development requires multifaceted approaches addressing education, industry practice, and community perception simultaneously.

### *Skills Gaps in the Current Construction Workforce*

Thematic analysis of skills gaps revealed that soft skills and professional behaviors dominated employer concerns far more than technical competencies. Three major themes emerged: interpersonal and communication skills, work ethic and professional conduct, and adaptability and problem-solving abilities.

*Interpersonal and Communication Skills*

Participants identified deficiencies in basic communication, including interpersonal skills, verbal communication, and effective face-to-face communication. Workplace-specific gaps included interview etiquette, email etiquette, and general interviewing skills. One participant emphasized workers need to know "*how to talk to people, like human-to-human interaction, not just texting*," suggesting digital communication preferences among younger workers create workplace friction. Communication extended beyond conversation to include listening skills and the "*art of storytelling - explaining a situation*," indicating workers struggle to articulate problems and communicate project needs effectively.

*Work Ethic and Professionalism*

This theme captured the frustration of the employers with workplace behaviors. Participants identified gaps in "*consistent attendance for work*," professionalism, patience, and willingness to put in hard work. Several responses highlighted attitudinal gaps, including grit, drive, and "*willing to learn.*" Related gaps included accountability, common sense, work ethic, and self-awareness, suggesting many entry-level workers lack understanding of basic workplace expectations.

### *Adaptability and Problem-solving Abilities*

Participants identified needs for critical thinking and problem-solving repeatedly. Related gaps included the ability to receive constructive criticism, suggesting workers struggle with feedback and continuous improvement. "*Willingness to be flexible in work*" and lack of resiliency indicated difficulty adapting to changing project conditions. Emerging technology created additional gaps, with participants noting the need for computer skills and the appropriate use of artificial intelligence without over-reliance on it. The technology gap between tradesmen and tradeswomen, along with system compatibility knowledge, reflected digital integration challenges. Financial literacy, time management, and hands-on training also appeared as gaps. Participants did not mention technical skills gaps related to specific trades, suggesting employers view soft skills deficiencies as more critical barriers to workforce effectiveness than technical knowledge gaps.

## *Marketing and Recruitment Strategies*

Thematic analysis of marketing and recruitment strategies revealed four major approaches: financial incentives and transparency, educational pathway and experiential engagement, and community impact messaging.

### *Financial Incentives and Transparency*

Participants emphasized the need to clearly communicate what construction workers actually earn, including competitive salaries, comprehensive benefits packages, and long-term career security. The message that construction careers require "*no student debt*" provides a powerful counternarrative to the traditional four-year college pathway. Many potential workers and their families significantly underestimate construction earning potential, making transparent salary information a critical recruitment tool that demonstrates construction careers offer financial stability comparable to or exceeding occupations requiring expensive bachelor's degrees.

### *Educational Pathway & Experiential Engagement*

Participants identified various opportunities to reach students, including visits to career tech classrooms, career fairs at high schools and middle schools, and general high school outreach efforts. The timing of these interventions matters significantly. One participant noted the importance of "*Trying to get to students early, while they're in high school*," recognizing that career decisions are made much before graduating high school. Several participants emphasized the need to educate students and families about construction as a legitimate career alternative that does not always require a four-year college degree, countering the existing notion that college is the only path to career success and financial security. Beyond educational access, participants emphasized positioning construction as meaningful work that improves communities. Multiple participants stressed that construction professionals contribute directly to the quality of life through the buildings, roads, and infrastructure they build. This messaging strategy presents construction work as noble and impactful rather than merely transactional employment, appealing to values-driven career seekers who want their work to matter.

Participants emphasized providing hands-on experiences that allow students to interact directly with construction work. Participants identified job shadowing opportunities, mentoring programs, and

organized outreach efforts, including presentations, field trips, and simulator experiences that expose middle and high school students to engaging aspects of the industry.

*Community Impact Messaging*

Beyond educational access, participants emphasized positioning construction as meaningful work that improves communities. Multiple participants stressed that construction professionals contribute directly to the quality of life through the buildings, roads, and infrastructure they build. This messaging strategy presents construction work as noble and impactful rather than merely transactional employment, appealing to values-driven career seekers who want their work to matter.

Across themes, participants emphasized proactive, multi-channel approaches combining financial transparency, educational partnerships, values-based messaging, and experiential learning to counter negative perceptions.

*Barriers within the Public Workforce System*

Thematic analysis of barriers within the public workforce system revealed five major themes: policy and regulatory obstacles, education system challenges, economic and competitive disadvantages, and infrastructure limitations.

*Policy and Regulatory Obstacles*

Participants identified procurement practices as fundamentally undermining workforce development. Low bid award processes were cited multiple times, with one participant noting: "*Low bid award projects result in low-paid workers*…" The emphasis on the lowest bid rather than quality creates downward pressure on wages and working conditions. Related policy barriers included removing Title 61 regulations and eliminating in-state preference policies that prevent fair competition. Additional concerns included diminishing trade licensing requirements and legal status issues for formerly incarcerated individuals.

*Education System Challenges*

The most frequently cited barrier was counselor knowledge and attitudes, with one participant stating: "*School counselors… know very less about construction*." Participants mentioned that counselors steer students toward traditional college pathways without understanding construction opportunities. Broader issues included continuous education funding cuts and insufficient access to training programs.

*Economic and Competitive Disadvantages*

Participants mentioned Oklahoma's position relative to neighboring states. Multiple participants noted talent loss to other regions and out-of-state companies bringing outside competitors rather than utilizing local talent. Without a coordinated economic strategy and competitive compensation, Oklahoma struggles to retain construction workers and attract investment.

*Infrastructure and Resource Limitations*

Participants mentioned practical barriers that prevent people from participating in the construction workforce. Lack of public transportation prevents workers from getting to job sites or training programs, particularly in areas without reliable transit options. Medical certification requirements for operating heavy equipment create additional credential hurdles. The increasing legalization and use of marijuana complicates drug testing policies and workplace safety protocols. These practical obstacles create significant challenges for otherwise qualified individuals from entering or remaining in construction, demonstrating that workforce participation depends on more than just skills and motivation.

Across themes, participants emphasized that workforce development cannot succeed when broader policy, economic, and institutional factors create systemic disadvantages that education and training programs alone cannot overcome. Table 1 presents a consolidated summary of the thematic analysis findings, organizing stakeholder responses across the four core questions. The table illustrates the interconnected nature of successful initiatives, skills gaps, recruitment strategies, and systemic barriers identified by participants

**Table 1.** Major themes and stakeholder insights

| Core Questions | Major Themes | Participants' Insights |
|---|---|---|
| **Current successful initiatives** | Educational programs and partnerships | Strong university and Career Tech programs; growing enrollment; coordinated secondary–postsecondary pathways; industry-aligned curricula |
| | Industry-led Initiatives | Internships, apprenticeships, work-based learning; hiring less-experienced workers; internal training; veteran-focused programs |
| | Community Engagement | High school outreach, job shadows, career fairs; trust-building with students and families; increasing interest in trades |
| **Skills Gaps in the Workforce** | Interpersonal and communication skills | Deficiencies in face-to-face communication, interviewing, email etiquette, listening, and explaining problems; overreliance on digital communication noted |
| | Work ethic and professionalism | Concerns about attendance, accountability, grit, willingness to learn, professionalism, and understanding workplace expectations. |
| | Adaptability and problem-solving | Gaps in critical thinking, feedback receptiveness, flexibility, resilience, and appropriate technology use; financial literacy and time management also noted. |
| **Marketing and Recruitment Strategies** | Financial transparency | Emphasizing competitive wages, benefits, long-term stability, and no student debt as strong recruitment tools. |
| | Educational pathways and experiential learning | Early outreach (middle/high school), career fairs, job shadowing, mentoring, field trips, simulators; educating families about non–four-year pathways. |
| | Community impact messaging | Framing construction as meaningful, values-driven work that improves communities and quality of life. |
| **Systemic Barriers** | Policy and regulatory obstacles | Low-bid procurement practices suppress wages; licensing, regulatory changes, and legal status issues limit workforce participation. |
| | Education system challenges | Limited counselor knowledge of construction careers; funding cuts; insufficient training access. |
| | Economic and infrastructure limitations | Talent loss to neighboring states; lack of public transportation; credential hurdles; drug testing and safety policy complications. |

## Discussion

This study adds to the construction workforce literature by identifying additional systemic barriers. While existing research debates the relative importance of technical versus soft skills in workforce preparation (Munir, 2022; Harris, 2025), findings of this study reveal that soft skills and professional behaviors overwhelmingly dominate employer concerns, with trade-specific technical competencies essentially absent from identified gaps. This suggests the skills debate may mischaracterize actual hiring barriers, indicating that technical training systems function adequately while interpersonal, work ethic, and adaptability deficiencies represent primary obstacles to workforce effectiveness. The findings reveal generational communication friction wherein younger workers demonstrate proficiency in digital communication but lack competence in face-to-face workplace interaction, representing a novel digital-native workplace incompatibility not captured in existing soft skills frameworks.

Beyond skills development, the findings reveal systemic barriers operating upstream of educational interventions. This study restates the direct linkage between low bid procurement practices and workforce quality as a policy level determinant absent from previous workforce development frameworks. The participants claimed that low bid procurement policies create downward pressure on wages and working conditions, thereby undermining workforce quality regardless of training program effectiveness. Similarly, the identification of school counselor knowledge gaps as a critical barrier shifts the intervention point from curriculum quality, emphasized in existing literature (Haviland & Robbins, 2021), to guidance infrastructure, suggesting that even high quality career and technical education programs may fail to attract students if career advisors lack knowledge to direct them appropriately. The identification of operational barriers extends understanding beyond the education training employment pipeline described by Koehler et al. (2023). These barriers include public transportation access, medical certification requirements, and marijuana legalization complications. Such obstacles encompass logistical and regulatory infrastructure that prevents otherwise qualified individuals from workforce participation. These findings demonstrate that construction workforce development requires simultaneous intervention across multiple domains, which include policy systems, educational guidance infrastructure, and operational barriers. This approach extends beyond enhanced training programs alone. It shows the need for a more comprehensive intervention framework than previously articulated in the literature.

## Conclusion

This study provides documentation of industry needs, challenges, and opportunities through the perspectives of diverse stakeholders who participated in the Oklahoma Workforce Commission's Construction Sector Partnership Meeting. The findings provide critical insights that should inform educational practice and policy.

The most notable finding is the emphasis on soft skills gaps over technical competencies. Participants consistently identified interpersonal communication, work ethic, professional conduct, and adaptability as more pressing deficiencies than technical knowledge. This challenges traditional assumptions underlying construction education curriculum design and suggests that programs emphasizing technical instruction at the expense of professional skills development require fundamental rebalancing. Construction educators must integrate explicit instruction in workplace communication, professional behaviors, problem-solving, and adaptability as learning outcomes rather than only technical competencies.

Beyond curriculum considerations, the themes highlight the need for deeper engagement of the industry with construction programs and in forming partnerships that provide mutual value. Effective workforce development requires shifting industry advisory committees working with construction programs from occasional review bodies to active partners in preparing the future workforce. The strong emphasis on early career exposure, especially at the middle school level, before negative stereotypes take hold, shows that recruitment efforts must begin earlier and directly counter misconceptions about construction careers by emphasizing competitive earning potential, meaningful community impact, and diverse career pathways. Perhaps most significantly, this study reveals that educational quality alone cannot solve workforce challenges when broader systemic factors create disadvantages. Policy barriers, including low-bid procurement practices that reduce wages, counselor biases that steer students away from the construction profession, funding instability, and regulatory obstacles, undermine workforce development efforts. Construction educators must engage more actively in policy advocacy, supporting sustainable CTE funding, procurement reform, regulatory modernization, and challenging stigmas within educational systems that devalue construction careers relative to traditional college pathways.

Oklahoma's construction workforce development can become a national model through collaborative efforts among educators, industry, and policymakers focused on practical skills, meaningful partnerships, and systemic reforms that prioritize both quality and accessibility in construction career pathways.

Several limitations should be considered when interpreting these findings. First, the single workshop format in Oklahoma limits generalizability to other states with different labor markets and regulatory environments. Second, the study lacked voices from construction workers themselves, particularly entry level workers whose direct experiences could provide additional insights into skills gaps and workforce barriers. Third, the study captured stakeholder perceptions rather than objective measures of workforce outcomes. Future research should employ mixed methods approaches combining stakeholder input with empirical performance data to validate these findings.

## References

Carrasquillo, A., Pradhananga, N., & Eraso, M. (2017). A University-Based Summer Camp to Promote Construction Technology Career for High School Students. In *53rd ASC International Conference Proceedings, Seattle, WA*.

Elbashbishy, T., & El-adaway, I. H. (2024). Skilled worker shortage across key labor-intensive construction trades in union versus nonunion environments. *Journal of Management in Engineering*, *40*(1), 04023063.

Harris, T. L. (2025). *Analysis of Industry Recognized Credentials that Lead to Quality Employment for High School Graduates* (Doctoral dissertation, Old Dominion University).

Haviland, S., & Robbins, S. (2021). Career and technical education as a conduit for skilled technical careers: A targeted research review and framework for future research. *ETS Research Report Series*, *2021*(1), 1-42.

Koehler, L., Hinds, H., & Lee, N. (2023). Expanding Opportunity: How States Can Accelerate the Use of Career Pathways Programs to Help Young People Access Meaningful Careers. *Bellwether*.

Lingard, H., Turner, M., & Pirzadeh, P. (2025). Is construction my industry of choice? Examining the factors affecting career choice decision-making of young workers. *Engineering, Construction and Architectural Management*.

Munir, F. (2022). More than technical experts: Engineering professionals' perspectives on the role of soft skills in their practice. *Industry and Higher Education*, *36*(3), 294-305.