

Improving Apprenticeship Completion Rates

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Summary

Apprenticeships programs are a [proven strategy](#) to develop a talent pipeline for a skilled workforce. Apprenticeships can also help employers mitigate workforce shortages and provide workers with paid work experience, classroom instruction, progressive wage increases, and a nationally recognized credential. In 2021, the United States Department of Labor [reported](#) that overall apprenticeship completion rates were below 35%. Apprenticeship completion rates are a concern for employers, labor organizations, and other organizations that sponsor and operate apprenticeship programs (referred to collectively as “apprenticeship providers” in this report). As apprenticeship expansion efforts continue to gain momentum, it is imperative to consider the factors that may prevent apprentices from being successful. This understanding will enable us to better support both existing and future apprentices in successfully completing their programs.

Apprentice retention is a dynamic process that is affected by multiple factors that change over time. These factors are diverse, interrelated, and specific to both occupation and culture (Böhn & Deutscher, 2022; Harris et al., 2001; Krötz & Deutscher, 2022; Powers, 2015). They can be considered at the individual level (e.g., a lack of social support or childcare assistance), program level (e.g., the mode and quality of training instruction), and occupational level.

This resource includes insights from the existing research on factors that contribute to apprentices not completing their programs, along with recommendations to alleviate aspects that weigh on apprentice retention. To the extent that apprentices experience the challenges described in this resource, the following strategies may help apprentice providers mitigate apprentice attrition:



Develop a legally defensible apprentice selection process in alignment with the apprenticeship requirements. This will help ensure that the candidates selected possess the appropriate knowledge, skills, and abilities (KSAs) needed upon entry into the program. Additionally, this process should offer candidates a realistic preview of the apprenticeship, job, and industry. To develop a legally defensible

selection process, it is essential that the KSAs assessed 1) relate directly to the apprenticeship/job requirements and, (2) are necessary prior to joining the apprenticeship. A thorough [job analysis](#) offers information on the KSAs needed before entering the program.

Apprenticeship providers should provide candidates with a realistic understanding of the nature of the apprenticeship, job, and industry. A job analysis can help identify components that should be included when offering prospective apprentices a realistic preview of the apprenticeship and job.



Create meaningful on-the-job work experiences that are inclusive and meet the needs of all apprentices.

Investing in workforce planning efforts can help ensure that apprentices' on-the-job experiences result in meaningful skill and competency development, rather than focusing on task completion. Meaningful on-the-job experiences that lead to skill attainment can allow apprentices to excel and advance during the apprenticeship program. Each apprenticeship program should establish formalized mentorship resources, ensuring that mentors are appropriately trained. Women apprentices and apprentices of color should be matched with mentors dedicated to their development. Additionally, apprenticeship programs should designate a mediator to address issues of equity, discrimination, or harassment and provide assistance and support to women apprentices and apprentices of color.



Foster supportive work environments that are void of harassment and discrimination. Apprenticeship providers need to invest in diversity, equity, and inclusion training (e.g., bias and sensitivity training, implicit bias training) and establish and enforce formal processes to combat hostility, harassment, and differential treatment toward any apprentices.



Enhance the apprentice training experience by offering choices about program delivery format and ensuring the delivery of high-quality instruction.

To help ensure that apprentices' learning needs are adequately supported, training providers should offer program delivery in formats that support all apprentices' learning needs. Additionally, hiring trained and experienced instructors, or providing training to less experienced instructors, could help improve the quality of training provided to apprentices.



Offer financial incentives, resources, and other supports to help alleviate financial hardships that arise for apprentices possessing limited financial resources, literacy, and/or planning skills.

This may involve minimizing and subsidizing apprenticeship costs through support from the apprenticeship provider or partner organizations. Additionally, consider providing apprentices with financial support for expenses such as equipment, childcare, and transportation. To help apprentices better navigate life as an apprentice and mitigate any financial pressures they face, offer opportunities to gain and build essential life skills (e.g., financial literacy and planning).



Offer apprentices social and wraparound supports and services throughout the apprenticeship program.

To help apprentices build their social support system and sense of belonging, facilitate opportunities for them to participate in mentorships, peer support opportunities, and team building. Providing wraparound supports and services helps apprentices fully engage in acquiring the knowledge and skills needed to excel and advance in the apprenticeship. These supports can be particularly impactful for apprentices facing various ongoing challenges prior to and during apprenticeships, such as minority group status, a criminal history, reliance on public assistance benefits, and/or poverty. Examples of wraparound services include transportation, childcare, mental health services, and social security insurance and benefits counseling.

To set up apprentices for success, it is **crucial to gain a deep understanding of the nature of the apprenticeship program, the intricacies and culture of the corresponding occupation, and the specific challenges that apprentices in that program face.** Multifaceted, interdisciplinary initiatives that leverage expertise in workforce planning, apprenticeships, psychology, sociology, and diversity, equity, and inclusion can help identify promising practices and strategies that bolster apprentice retention and, ultimately, the talent pipelines for these jobs.

Introduction

Apprenticeships programs are a [proven strategy](#) to develop a talent pipeline for a skilled workforce and can also help address workforce shortages. However, apprenticeship completion rates are a concern for employers, labor organizations, and other organizations that sponsor and operate apprenticeship programs (referred to collectively as “apprenticeship providers” in this report). In 2021, the [United States Department of Labor reported](#) that overall apprenticeship completion rates were below 35%, with Black apprentices being less likely to complete their apprenticeship programs, 24% completion rate, compared to their White (33%) or Asian (30%) peers.

High apprentice attrition can compound the skills gap and labor shortages, reduce employers’ return on investment in the apprenticeship, and reduce the benefits for workers who prematurely exit from the program. As efforts to expand apprenticeships continue to gain momentum, it is imperative to consider the factors that may inhibit apprentices from being successful. This understanding will better inform efforts to support existing and future apprentices in the successful completion of their programs.

The electrical training ALLIANCE (etA) has partnered with the American Institutes for Research (AIR) to identify strategies to better support apprentices and improve apprenticeship completion rates. As part of this work, AIR conducted a review of studies that looked at apprentice retention to better understand the factors contributing to apprentices leaving apprenticeship programs before completion. Our review included insights from U.S. and non-U.S. construction- and non-construction apprenticeship programs. This resource summarizes the findings from this review with recommendations on ways to mitigate factors affecting attrition.

Nature of Factors That Affect Retention

Apprentice retention is a dynamic process. There is no one reason why apprentices decide to leave their programs. Multiple factors inform an apprentice’s decision to stay in or leave their program.



Factors that affect retention change over time. The types of resources and interventions needed to assist new apprentices and encourage them in their commitment to their training are different from those needed for apprentices in the last month or year of the apprenticeship program (Harris et al., 2001).



Retention factors are diverse and interrelated. The influence of retention factors can vary based on demographics, such as race, gender, and age (Böhn & Deutscher, 2022; Harris et al., 2001; Krötz & Deutscher, 2022).



Retention factors are specific to both occupation and culture. The factors that influence an apprentices decision to persist or drop out are best understood at the occupational level and are influenced by that occupation’s culture (Harris et al., 2001; Powers, 2015).

In the following sections we summarize key findings in the following categories: Workplace Environment, Classroom-Related Factors, Financial Security, and Personal and Life Challenges.

Workplace Environment

Apprentices may face workplace-related challenges that influence their ability or motivation to stay in the program. Our review uncovered specific challenges, including incomplete information on the nature of the work, low quality of on-the-job training, and hostility and harassment on the job.

To the extent that apprentices experience workplace-related challenges described in this section, the following strategies may help apprenticeship providers improve apprentice’s experiences of their program:

- **Offer candidates a realistic preview during the apprentice selection process** to help them gain a comprehensive and realistic understanding of the nature of the apprenticeship, job, and industry.
- **Invest in intentional workforce planning efforts** to ensure that apprentices gain meaningful on-the-job work experiences.
- **Develop and enforce a respectful workplace with effective policies and processes.** For example, develop new and/or improved anti-harassment policies, invest in diversity, equity, and inclusion training, establish formal anti-harassment policies to combat apprentice harassment, establish effective communication of these policies, and enforce policies with follow-through from leadership.
- **Establish formalized mentorship resources** for each apprenticeship program, ensuring that mentors are appropriately trained, and that women apprentices and apprentices of color are matched with a dedicated and trained mentor.
- **Designate a mediator to address issues of equity,** discrimination, or harassment and support women and apprentices of color.

Incomplete information on the nature of the job leads to unrealistic expectations. For example, apprentices may lack a realistic understanding of the nature of the actual job or its pay structure, work culture, or cost and travel requirements (Helmer and Alstadt, 2013; Reed et al., 2012; Petrucci, 2021; Puchert et al., 2021).

Apprentices are more likely to quit if they are dissatisfied with the quality or quantity of skills delivered by the program. Our review uncovered the following reasons for low-quality on-the-job training:

- **A focus on task completion, rather than learning,** could result in an overabundance of low-skill tasks and a lack of meaningful ones (Harris et al., 2001; Kelly & Wilkinson, 2012; Wilkinson & Kelly, 2018). Helmer and Alstadt’s (2013) study reported that shrinking profit margins on construction bids forced contractors to hire fewer workers for projects and to demand greater productivity. Consequently, when the focus is on task completion, apprentices are likely to be assigned manual or menial tasks rather than shadowing and working alongside journey workers.
- **Differential treatment of women apprentices** manifests in different ways, all of which hamper their ability to gain skills and slows down their progress (Berik et al., 2011; Petrucci, 2021). Kelly and Wilkinson (2012) reported that the women apprentices in heavy highway construction felt that they were treated differently from their male counterparts. These women apprentices also perceived that they were viewed as less competent workers. Reed et al. (2012) reported that some women apprentices in the trades experience a lack of understanding and empathy from their worksite supervisors, who may not tolerate tardiness or absences related to childcare issues. In other instances, male workers may believe they are helping female

Wilkinson & Kelly (2018) found that, women of color and White women in highway trades reported these challenges at higher rates than their male counterparts.

apprentices by offering to do tasks for them, whereas they are inhibiting them from gaining the skills necessary for their trade (Worksystems Inc. et al., 2018).

- **Inadequate mentoring or opportunities to learn the required skills may discourage apprentices from completing their apprenticeships.** Kelly and Wilkinson (2020) identified lack of mentoring and on-the-job training as one of the top three most frequently reported non-financial challenges faced by apprentices in highway construction in Oregon (followed by difficult coworkers and harassment and discrimination). Reasons for this within the construction industry include competition for available work, time restraints, withholding work, and poor interpersonal and supervisory skills (Helmer & Alstadt, 2013; Worksystems Inc. et al., 2018). When apprentices are not being appropriately mentored or trained, they may experience isolation and/or be assigned low-skill tasks. This can negatively impact their ability to advance during the apprenticeship (Lopata et al., 2015; Wilkinson & Kelly, 2018). Wilkinson and Kelly (2016) found that racial/ethnic minority highway trade workers often do not have access to mentors or people who will teach them the skills of their trade, and women and people of color are more likely to report doing low-skill tasks, such as cleaning and sweeping. One study suggested designating an individual to specifically mediate issues of equity, discrimination, or harassment and support apprentices who are women, black, indigenous, and people of color (Petrucci, 2021).

Our review revealed several types of **hostility and discrimination in trade job**, based on race, gender identity, sexual orientation, and apprentice status/family background in the trades (Wilkinson & Kelly, 2016; Helmer & Alstadt, 2013). An immediate consequence of discrimination is that working in a hostile work environment can make it very challenging for apprentices to continue in their programs. In addition to the mental health implications of experiencing hostility and harassment on the job, another consequence is that **subtle acts of prejudice and ostracism damages apprentices' ability to form relationships** with journeymen, foremen, supervisors, and other workers on their jobsite. This, in turn, affects their opportunities to be mentored and taught on the jobsite. While hostility and harassment are unfortunately common occurrences with construction jobs, **their impact extends beyond those immediate instances. Ultimately, they affect individuals' ability to maintain consistent employment** (Kelly & Wilkinson, 2012; Petrucci, 2021; Wilkinson & Kelly, 2016).

Kelly & Wilkinson (2018) found that in the trades, all race and gender groups experience discrimination on the jobsite, with women and people of color reporting high rates of discrimination due to their gender and/or race/ ethnicity.

Classroom-Related Factors

Classroom-related factors, such as low-quality training and a mismatch between program format(s) and an apprentice's learning needs, emerged as challenges that contribute to apprentices leaving their programs.

To the extent that apprentices experience the classroom-related challenges described in this section, the following strategies may help apprenticeship providers improve apprentice's experiences of their program:

- **Maintain open lines of communication with apprentices** to understand and address any classroom challenges.
- **Offer program formats that adequately support the learning needs of all apprentices.**
- **Hire experienced instructors or provide training to new instructors** to ensure high-quality training for apprentices.
- **Include a relevant assessment** in the apprentice selection process to help ensure that apprentices have the necessary entry-level skills for success in the apprenticeship. A thorough [job analysis](#) can inform which skills apprentices must have before joining the apprenticeship.

The **format and quality of program delivery impacts apprentices' experiences**. The Canadian Apprenticeship Forum (2004) found that employers, unions, and apprentices find inflexible program delivery, such as block release training (i.e., where apprentices leave their employer for weeks or months to complete the in-class portion of their training), to be inconducive to apprentice's experience of their program. These periods of in-class training can negatively affect productivity for employers, and apprentices may face challenges such as relocation and increased financial burden to attend the training. Helmer and Alstadt (2013) found that **poor teaching by untrained course instructors can negatively impact the challenges faced by trade apprentices**. In the same study apprentices said that some instructors read straight from the textbook, while others failed to teach the material that later appeared on tests.

Helmer and Alstadt (2013) found that trade apprentices who have been out of school for several years reported **struggling to relearn material or readjust to life as a student**. Some struggled with other aspects of being an apprentice (e.g., copious amounts of homework, struggling to sit in a classroom again). The meta-synthesis conducted by Böhn and Deutscher (2022) shows that studies that investigate the apprentices' performance levels unanimously confirm that poor performance results in higher probabilities of apprentice attrition. Math skills were cited as a critical skill set that apprentices need to succeed, particularly in trade apprenticeships. A couple of studies reported that **difficulty mastering the required math skills is a major factor in apprenticeship non-completion** (Bruno et al., 2016; Helmer & Alstadt, 2013).

Financial Security

Apprentices can be challenged by financial hardships, which can be exacerbated by limited financial literacy and planning skills and various apprenticeship-related costs. Depending on the industry, apprentices may also face periods of unemployment and low pay.

To the extent that apprentices experience financial challenges described in this section, the following strategies may help apprenticeship providers improve apprentice'-s' experiences of their programs:

- **Minimize and subsidize costs to apprentices** (e.g., through employer and vendor sponsorships).
- **Provide apprentices with resources to navigate the state unemployment insurance system and processes**, particularly for apprenticeships in which apprentices may experience periods of unemployment.
- **Offer apprentices opportunities to acquire and develop essential life skills** (e.g., financial literacy and planning).

Several costs associated with an apprenticeship can be an obstacle to participation. Start-up and ongoing costs for apprenticeships can include tools, transportation, clothing, initiation fees, and, where applicable, union dues and can hinder apprentices seeking to get a foothold in the program (Bolter et al., 2022; Berik et al., 2011; Canadian Apprenticeship Forum, 2004; Lopata et al., 2015; Wilkinson & Kelly, 2016). Challenges associated with transportation include difficulties with paying for gas, accessing reliable transportation, and traveling for out-of-town work (Canadian Apprenticeship Forum, 2004; Helmer & Alstadt, 2013; Kelly & Wilkinson, 2020; Wilkinson & Kelly, 2016).

In construction apprenticeship programs, financial hardships that stem from **regular periods of unemployment and lack of work** emerged as a predominant factor that make it challenging for apprentices to continue in their apprenticeships (Bruno et al., 2016; Kelly & Wilkinson, 2012; Lopata et al., 2015; Petrucci, 2021). In construction, women and minority workers work far fewer hours annually than their White male counterparts (Berik et al., 2011; Kelly & Wilkinson, 2012; Worksystems Inc. et al., 2018). Perhaps unsurprisingly, **those who complete their apprenticeship spend less time out of work than those who do not.**

Berik et al. (2011) found that men on average receive more training than women by as much as a quarter of the total hours required to qualify as certified journey worker counterparts.

In addition to their impact on an apprentice's income, repeated layoffs can slow down on-the-job hours and lengthen the apprenticeship time (Helmer & Alstadt, 2013). According to Kelly and Wilkinson (2020) highway construction apprentices who receive unemployment insurance as needed (e.g., during out-of-work periods or class periods) were more likely to complete their apprenticeship than those who did not. Wilkinson and Kelly (2018) found that individual income was most positively associated with completion of highway trade apprenticeships, followed by receiving unemployment benefits during the apprenticeship.

Some studies reported that even when apprentices have steady work, they can struggle to make ends meet (Harris et al., 2001; Helmer & Alstadt, 2013; Lopata et al., 2015). Berik et al. (2011) found that the potential wages that apprentices could earn in the trade after dropping out, particularly after attaining a certain level of skill, can make it more challenging for some apprentices to stay committed to the program. Some apprentices have a **limited understanding of financial literacy and money management skills, which can cause difficulty maintaining financial security** (Helmer & Alstadt, 2013). Additionally, real-life financial hardships or other challenging situations (e.g., family care needs, transportation issues) can prevent apprentices from continuing with their careers, especially if they have limited or no savings (Worksystems Inc. et al., 2018).

Personal and Life Challenges

Numerous personal and life challenges contribute to an apprentice's decision to leave their program. Central to these challenges is the lack of a social and financial support system, which is critical to allow apprentices to look after themselves and their families during their program.

To the extent that apprentices experience personal and life challenges described in this section, the following strategies may help apprenticeship providers improve apprentice's experiences of their program:

- **Provide apprentices with financial support for childcare and transportation costs.**
- **Facilitate opportunities for apprentices to participate in mentorship, peer support, and team-building activities** to help them build their social support system and sense of belonging.
- **Provide apprentices with ongoing wraparound services and supports** (e.g., transportation services, childcare arrangements, mental health services, substance abuse supports, and social security insurance and benefits counseling)

Our review uncovered three ways in which childcare-related challenges contribute to a construction apprentice's decision to leave the program prior to completion:



Perception that the apprentice is not committed. Apprentices with childcare responsibilities may be perceived by their supervising journey person and/or peers, whether accurately or not, as less committed to their training (Berik et al., 2011; Helmer & Alstadt, 2013; Reed et al., 2012).



Lack of consistent access to affordable childcare. Access to childcare that is affordable relates to the previously discussed factor of apprentices' low wages being insufficient to make ends meet (Petrucci, 2021; Reed et al., 2012; Wilkinson & Kelly, 2016).



Demanding apprentice schedules, which often necessitate long hours and travel to worksites, create a conflict for apprentices who have childcare responsibilities (Helmer & Alstadt, 2013; Reed et al., 2012).

Kelly and Wilkinson (2020) found that receiving financial support for childcare resulted in highway construction apprentices being 11% more likely to complete their apprenticeship.

Apprentices face **transportation challenges, including the cost of travel and gas** (Helmer & Alstadt, 2013; Wilkinson & Kelly, 2018). Kelly and Wilkinson (2020) found that receiving financial support for travel and gas increased the likelihood of completion by 7% among highway construction apprentices in Oregon.

Apprentices can find the demands of the apprenticeship program challenging, as they manage work, classes, and their personal life (Bruno et al., 2016; Helmer & Alstadt, 2013). **Several studies cited how critical familial and social support are to apprenticeship success and completion** (Harris et al., 2001; Kelly & Wilkinson, 2020; Taylor & Freeman, 2011). Wilkinson and Kelly (2017) showed that social support increased the odds of apprenticeship program completion more than the financial supportive services that were evaluated in that study. Helmer and Alstadt (2013) found that mental health and substance issues contribute to building trade apprentice's personal and life challenges.

Conclusion

The circumstances that allow for successful completion of an apprenticeship program extend beyond the program itself and can be affected by a multitude of factors that shape an apprentice's life. These retention factors are diverse, interrelated, and change over time.

Understanding why individual apprentices persist or drop out can be best achieved at the occupational level, where it is influenced by the culture of that occupation.

To set apprentices up for success, **it is crucial to gain a deep understanding of the nature of the apprenticeship program, the intricacies and culture of the corresponding occupation, and the specific challenges that apprentices experience in that program.**

Multifaceted, interdisciplinary initiatives that leverage expertise in workforce planning, apprenticeships, psychology, sociology, and diversity, equity, and inclusion can help identify promising practices and strategies that bolster apprentice retention and, ultimately, the talent pipelines for these jobs.

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