Apprenticeship Data Systems Brief

May 2024

In response to Washington Senate Bill 5764, Education Northwest and the William D. Ruckelshaus Center are conducting research across four key areas: pathways to credentials for apprentices, apprentices' demand for degrees, funding models for apprentices within the community and technical college system, and national promising practices in credential delivery.[1] This research supports a collaborative process among key partners in Washington state's education and workforce development sectors to generate recommendations for developing opportunities for registered apprentices to receive credit towards degrees.

Data-driven decision-making is a crucial component of this process. Education Northwest's initial research revealed significant gaps in understanding how apprentices engage with higher education, including fragmented data systems and limited insights into apprentices' experiences and their interest in earning additional credentials.[2] This brief seeks to address these gaps by analyzing the apprenticeship and higher education data landscape, both nationally and within Washington state. Education Northwest examined state and federal data systems and resources to identify strengths and limitations of current systems while highlighting opportunities to enhance data collection and utilization. These insights are intended to inform strategies for evaluating and expanding pathways that connect apprenticeships to academic credentials.

Current data systems

Registered apprenticeship programs collect data differently depending on whether they are in an Office of Apprenticeship (OA) state or a State Apprenticeship Agency (SAA) state.[3] States can choose

[1] https://app.leg.wa.gov/billsummary?BillNumber=5764&Initiative=false&Year=2021

[2] https://s3.wp.wsu.edu/uploads/sites/2180/2024/03/Appendix-B-EDNW-Amended-Research-Report-Appr-HE.pdf

[3] https://www.apprenticeship.gov/about-us/apprenticeship-system

to have the U.S. Department of Labor regulate, monitor, and support their programs (OA states), or they can establish their own state agency to manage apprenticeship programs (SAA states). One key difference between these types of states is their case management systems. OA states use the Registered Apprenticeship Partners Information Data System (RAPIDS), while SAA states can either use RAPIDS or develop their own state-specific system. Washington state is an SAA state and has developed its own system, called the Apprenticeship Registration and Tracking System (ARTS). These data systems track apprentice registrations and cancellations, as well as a range of details about the programs and individuals participating in them.

RAPIDS provides a national overview of apprenticeship data

RAPIDS serves as a central database that offers a comprehensive national perspective on apprenticeships. It enables policymakers, practitioners, and researchers to analyze apprenticeship data over time, disaggregated by geographic and demographic characteristics. With data visualization tools, such as a U.S. map and workforce population comparisons, RAPIDS helps individuals easily understand trends and patterns in apprenticeship data. [4]

Recent federal efforts have strengthened data collection. For instance, a state apprenticeship agency data portal, launched in 2023, allows states to transfer individual-level data into RAPIDS, expanding its scope. Additionally, in 2023, the U.S. Department of Labor (DOL) proposed new rules to revise the framework for collecting program sponsor and apprentice data to more accurately assess the performance and equity of these programs.[5]

However, national data has several limitations:[6]

- It lacks data on unregistered apprenticeships, youth apprenticeships, and pre-apprenticeships.
- Data can be missing for certain variables, particularly for self-reported demographics.
- Employers or apprentices may misreport some information.
- The data does not capture information that could be important, for example, whether apprentices were ultimately hired and any interim credentials they have earned.
- There is limited data on apprentices' experiences of their apprenticeship program, which is important to understanding retention and outcomes.

[4] https://www.apprenticeship.gov/data-and-statistics

[5] https://www.federalregister.gov/documents/2024/01/17/2023-27851/national-apprenticeship-system-enhancements

[6] https://bpb-us-e1.wpmucdn.com/blogs.gwu.edu/dist/b/3597/files/2022/09/RAPIDS_DQA_20220805.pdf

Washington state tracks apprenticeship data through ARTS

The Apprenticeship Registration and Tracking System (ARTS) managed by the Washington State Department of Labor & Industries (L&I) is the state system of apprenticeship data. ARTS includes several datasets that provide detailed information about apprentices, programs, training agents, occupations, and program locations. The ARTS data is publicly available for download and includes unique identifiers to link data across different data sets, as detailed in table 1.

Table 1. Washington state apprenticeship datasets

Dataset	Description	Variables included
L&I Apprenticeship Apprentice Details	An individual-level dataset updated monthly describing apprentices' statuses	Apprentice ID, first and last name, program ID and name, occupation ID and name, standard occupational classification, registration date, transfer date, work start date, current status, current status date, term in hours, previous work hours credit, additional work hours credit, on-the-job training hours, related supplemental instruction hours, sex, race, ethnicity, education level, veteran status, initial step and effective date, current step and effective date, probation start and end date, employer ID and name, employment start date, special registration reason, special program identification, other license, county, ZIP code, city, state, program occupation ID, cancel reason
L&I Apprenticeship Program Details	A program-level dataset updated monthly providing information about registered apprenticeship programs	Program ID and name, preparatory program, program status, status date, approval date, program URL, contact name, email, phone, address, union status
L&I Apprenticeship Training Agent Details	A dataset updated monthly identifying apprenticeship training programs	Program ID and name, program occupation ID, program status, employer name and address, occupation name, status, and start date
L&I Apprenticeship Occupation Details	An occupation-level dataset updated monthly describing details about an occupation	Program ID and name, program occupation ID, program status, occupation ID, name and status, standard occupational classification code, standard occupational classification description, term hours, related supplemental instruction hours, added date, inactive date, wage, journey wage
L&I Apprenticeship Program County Details	A dataset updated monthly detailing the location of programs	Program ID and name, state code, county name

Source: WA State Department of Labor & Industries

ARTS provides access to apprenticeship data

Washington state has several strengths in its apprenticeship data systems. L&I provides a lookup tool that allows individuals to search for details about state-registered apprenticeship programs and apprentices.[7] This tool provides information such as journey-level wages, program durations, standards, and contact details. It also includes apprentice-specific data, such as occupations and training hours completed. These resources enable users to explore program options and learn more about apprentices' progress.

Additionally, Washington state publicly shares apprenticeship data to inform decision-making. The Washington State Apprenticeship and Training Council (WSATC) publishes quarterly reports using ARTS data on apprenticeship participation trends.[8] These reports provide key metrics, including the total number of active apprentices overall and disaggregated by gender and race. They also include data on registrations, completion certificates awarded, and cancellations, as well as a breakdown of the top ten construction trade and non-construction trade occupations. This reporting helps to monitor the growth, diversity, and effectiveness of apprenticeship programs.

Washington state also supplements its registration data with surveys of apprentices, sponsors, and training agents. For example, L&I regularly survey apprentices and program coordinators to identify challenges and improve support throughout the apprenticeship journey, with the results available online.[9]

ARTS has limitations in usability

L&I apprenticeship data is publicly available online, several challenges limit its usability and impact. The data is provided only as a spreadsheet, requiring users to analyze raw data themselves, which can be a challenge for those without advanced analytical skills. An interactive dashboard or more accessible visualization tools could help users better understand apprenticeship trends. Additionally, the dataset lacks a data dictionary to explain variable definitions and coding, making it difficult for users to interpret the data accurately.

Because the apprentice details data is at the individual level, demographic details such as race and ethnicity are excluded unless a formal data-sharing request is submitted to L&I. This limitation restricts the ability to analyze demographic trends comprehensively across the state. Additionally, the WSATC quarterly reports aggregate racial and ethnic data, grouping apprentices identified as

[7] https://lni.wa.gov/licensing-permits/apprenticeship/apprenticeship-registration-and-tracking-system

[8] https://www.lni.wa.gov/licensing-permits/apprenticeship/wsatc#quarterly-reports

[9] https://lni.wa.gov/licensing-permits/apprenticeship/apprenticeship-retention-survey#1-month

American Indian or Alaska Native, Black or African American, Asian, Native Hawaiian or Pacific Islander, or multiracial into a single "minorities" category compared to White apprentices. This broad aggregation masks important trends and prevents a nuanced understanding of diversity within apprenticeship programs. Providing a detailed demographic breakdown would enhance the ability to assess equity, identify disparities, and better understand the representation of diverse groups in these programs.

Connecting apprenticeship and higher education data

As states seek to expand pathways to credentials for apprentices, understanding the connection between apprenticeships and higher education is essential. Data is key to this understanding; however, education and workforce data are not often integrated. There is no national framework for tracking apprentices' enrollment and credits in higher education.[10] This lack of connected data systems limits our ability to understand individuals' pathways through both apprenticeship and higher education.

Washington state can connect data through the ERDC

Washington state has the ability to connect apprenticeship and higher education data through the Education Research and Data Center (ERDC), managed by the Washington Office of Financial Management. This statewide longitudinal data system, the P20W, links data from early learning, K–12, postsecondary, and workforce sectors, including apprenticeship data. [11] The ERDC collaborates with various state agencies and research organizations to fulfill data requests, develop data dashboards, and conduct research. The ERDC has been recognized as a case study in high-quality cross-agency data governance.[12]

Washington state's ability to connect apprenticeship data with other education and workforce data sets offers significant potential for detailed analyses of apprenticeship outcomes and trends. The state legislature commissions regular reports to assess the impact of apprenticeships on labor market outcomes. For instance, the Washington Workforce Training and Education Coordinating Board evaluates the state workforce training system, including apprenticeship outcomes, every two

[10] https://safesupportivelearning.ed.gov/resources/connecting-apprenticeship-and-higher-education-eight-recommendations

[11] https://erdc.wa.gov/about-us/about-erdc

[12] https://dataqualitycampaign.org/wp-content/uploads/2018/01/DQC-Cross-Agency-Gov-CaseStudy-090920.pdf

years. [13] Additionally, Career Connect Washington, a statewide initiative promoting career-connected learning, tracks student outcomes using cross-agency data. It compares enrollment and demographic data of program participants with high school graduation cohorts, with results displayed in an interactive dashboard.[14]

There can be challenges connecting data

Although Washington state is a leader in linking apprenticeship data with other educational data, there are several limitations. First, the ERDC's research agenda prioritizes workforce and post-secondary systems but does not explicitly include apprenticeship as a research question.[15] Without making apprenticeship pathways a formal research question, there is limited understanding of these pathways. Additionally, accessing ERDC data can be a complex and time-intensive process for individuals, often requiring advanced knowledge of data analysis. Creating linked datasets demands significant effort from ERDC staff, including technical expertise and resource allocation. Without dedicated funding or a specific project to support such analyses, the capacity to fully utilize these data connections remains constrained, limiting the potential for actionable insights into apprenticeship outcomes.

Improving data systems

High-quality data systems are essential for understanding and improving education and workforce development pathways, including apprenticeships. Current systems often fall short in their ability to provide comprehensive insights into how apprentices progress through training and transition into careers or higher education. Strengthening data systems can address these gaps by enabling better tracking of individuals' journeys and informing targeted policies and program improvements.

Linking data systems helps track pathways

States across the country are connecting K–12, postsecondary, apprenticeship, and workforce data to provide policymakers and practitioners with a clearer understanding of students' educational and career pathways to support evidence-based decision-making.[16] Washington state's ERDC is an

[13] https://app.leg.wa.gov/rcw/default.aspx?cite=28C.18.060

[14] https://careerconnectwa.org/our-work-and-impact/

[15] https://erdc.wa.gov/sites/default/files/2024-11/ERDC%20Research%20Agenda_Final.pdf

[16]https://oerc.osu.edu/sites/default/files/publications/ADRF_Postsecondary_and_Workforce_Data_Model_Report_OSU_2021.pdf

innovative data governance structure that could be further enhanced to support data-driven decision making on apprenticeship pathways in Washington state.

The ERDC's research agenda could include standard reporting to provide valuable long-term data on apprentices' connections to higher education, such as their academic credits, grades, and credentials earned. The data can also be leveraged to examine educational pathways and workforce outcomes before, during, and after apprenticeships. Examples of research questions include:

- How do individuals' K–12 backgrounds, such as career and technical education (CTE) participation, influence their entry into apprenticeship programs?
- How many apprentices are concurrently enrolled in a two- or four-year postsecondary institution, and how many earn certificates or degrees?
- How many apprenticeship completers later pursue postsecondary education? Conversely, how many postsecondary graduates join apprenticeship programs?
- What are the employment outcomes for apprentices who also earn certificates or degrees?

By expanding its research agenda, ERDC can provide valuable longitudinal data and insights into apprentices' interactions with the education and workforce sectors.

Enhancing data collection deepens insights

Improving data systems by broadening and deepening data collection, alongside enhancing utilization and reporting, is essential for informed decision-making and the development of effective pathways. Recommendations include:

- Collecting data on youth and pre-apprenticeship programs is essential for understanding and supporting these pathways. For example, the Oregon Pre-Apprenticeship Tracking System (OPAT) serves as a model for data collection in pre-apprenticeships.[17]
- Engaging with employers to gather information on unregistered apprenticeship programs provides a more comprehensive view of apprenticeship activities within the state.
- Including demographic variables like primary language spoken, disability status, sexual orientation, gender identity, socioeconomic status, parental status, and geographic information can provide deeper insights into the apprentice population.

17 https://www.oregon.gov/boli/apprenticeship/pages/pre-apprenticeship-programs.aspx

- Collecting data through surveys or interviews about apprentices' challenges, support systems, and overall experiences can provide valuable insights into retention and program effectiveness.
- Developing and sharing apprenticeship data through interactive dashboards enhances transparency and accessibility. For instance, Colorado displays their apprenticeship data through an interactive dashboard.[18]
- Apprenticeship programs can include data on college enrollment, credits earned, and credentials obtained within their data collection systems. This integration will enable a more comprehensive understanding of apprentices' educational pathways and outcomes.
- Institutions of higher education can integrate apprenticeship status into their data collection systems. This could include indicators to identify registered apprentices within their student populations, enabling targeted outreach, support services, and tracking of outcomes.

Conclusion

This review highlights both the strengths and limitations of apprenticeship data systems at the national level and within Washington state. Existing systems provide valuable insights into participant demographics and enrollment trends; however, they often fall short in tracking long-term outcomes and integrating with higher education data. Washington state's ERDC offers a promising framework to address these gaps but competing research priorities and resource constraints present ongoing challenges. Strengthening data systems as outlined in this brief will help meet the goals of Washington Senate Bill 5764 by supporting the development of pathways that connect apprenticeships to academic credentials. By enhancing the understanding and utilization of existing data systems, Washington state can improve decision-making and advance career and education pathways for apprentices.

[18] https://apprenticeship.colorado.gov/data