

Career and technical education (CTE) data in Oregon: Strategies for closing equity gaps in CTE

Please introduce yourself in the chat! List your name, affiliation, and role.

Amy Arneson
Senior Researcher – Quantitative Methods
REL Northwest at Education Northwest

Hella Bel Hadj Amor
Leader – Applied Research and Technical Support
REL Northwest at Education Northwest

Steve Klein
Director – Career Education and Workforce Development
REL Northwest at Education Northwest

Agenda



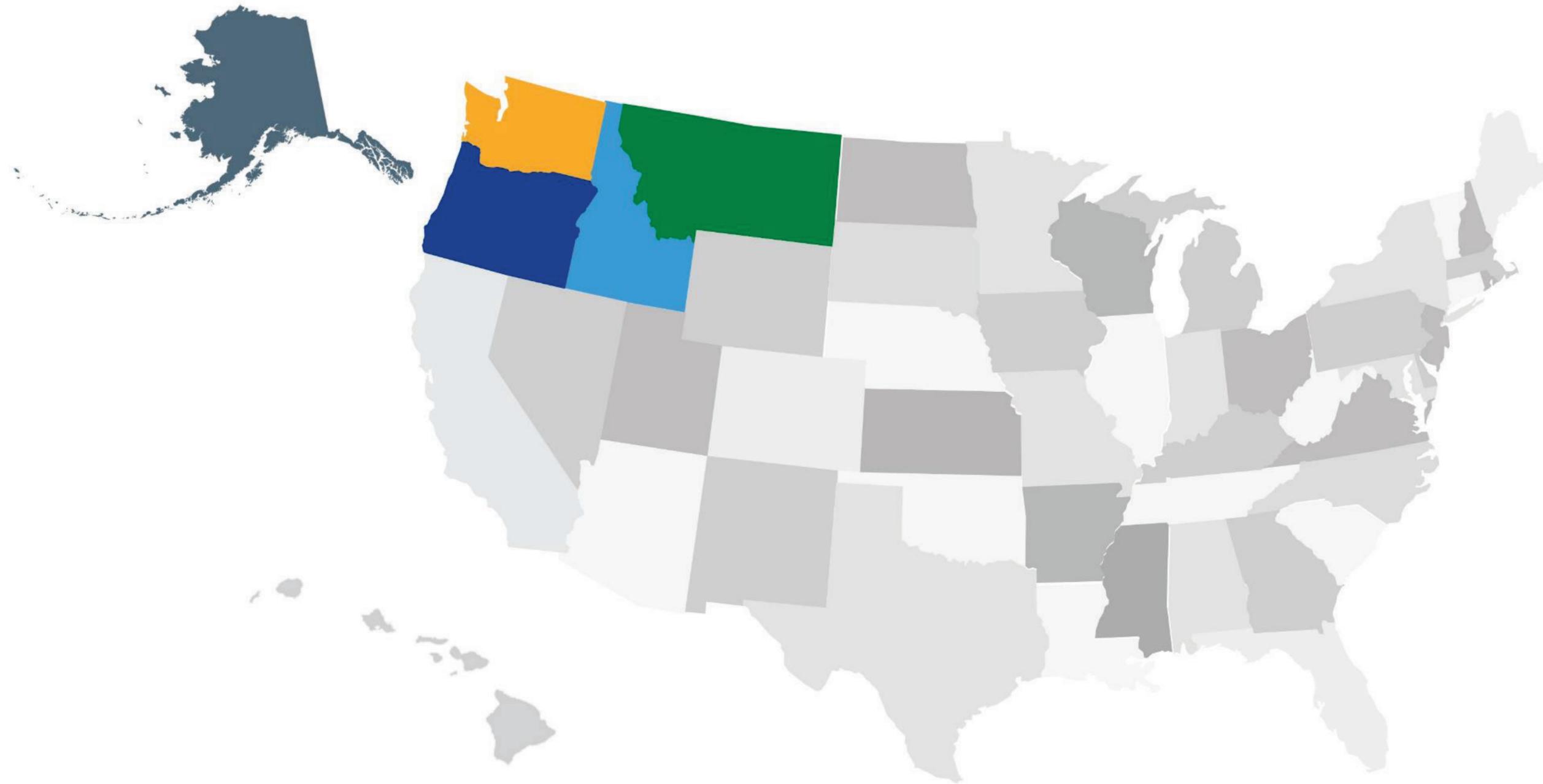
1. Introduction: Training objectives, Oregon's equity lens^a, CTE study^b
 - An example from the field
2. Review of training 1
 - Using the CTE Participation Explorer to identify or confirm an equity gap in CTE participation and/or retention (Breakout #1)
3. Barriers from the literature and root causes in Oregon related to equity gaps in CTE
4. Conducting your own root cause analysis related to equity gaps in CTE (Breakout #2)
5. Strategies to address barriers to equity from the literature and strategies to address root causes from Oregon related to equity gaps in CTE
6. Closing

Meeting agreements

- Be engaged
- Actively listen
- Ask questions
- Share speaking time
- Share expertise to support collective learning
- Be open-minded
- Trust the process



Regional Educational Laboratory (REL) Northwest



Why are we here today?

- **Goal:** Increase stakeholder capacity to identify evidence-based strategies to address root causes of equity gaps informed by CTE participation and retention data
- **Objectives**
 - Become familiar with the Oregon CTE Participation Explorer data dashboard
 - Identify or confirm an equity gap in CTE participation and/or retention within your district or region to focus on for today's root cause analysis
 - Learn about barriers to equity in CTE as identified in the literature
 - Understand the steps involved in and conduct a root cause analysis
 - Learn about evidence-based strategies to address barriers to equity

Context

Oregon's equity lens

- “We are committed to explicitly identifying disparities in education outcomes for the purpose of targeting areas for action, intervention, and investment.”



REL Northwest study of CTE in Oregon

- We found gaps in participation, concentration, and program retention rates by gender, race/ethnicity, special education status, English learner status, and socioeconomic status. These gaps were especially pronounced in some career areas.



Making it real: Conducting a root cause analysis related to equity gaps in CTE – An example from the field

Review of training 1

The CTE Participation Explorer dashboard

ANNUAL PARTICIPATION

Explore annual rates of program participation

- Annual “snapshot”
- Includes all high school students (grades 9-12)

COHORT PARTICIPATION

Explore rates of CTE program participation and retention for high school graduates

- Includes only high school graduates

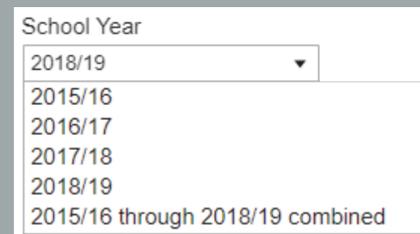
EQUITY EXPLORATION

Explore program participation and retention for graduates among career areas and student groups

- Data displays designed to identify equity gaps

The CTE Participation Explorer dashboard

Choose how you want to explore the data

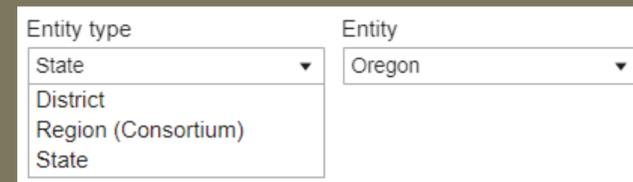


School Year

- 2018/19
- 2015/16
- 2016/17
- 2017/18
- 2018/19
- 2015/16 through 2018/19 combined

Choose the year or years

Combined years not available on annual participation tab



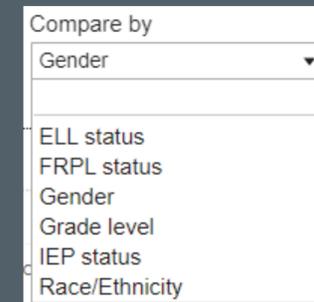
Entity type

- State
- District
- Region (Consortium)
- State

Entity

- Oregon

Choose the entity



Compare by

- Gender
- ELL status
- FRPL status
- Gender
- Grade level
- IEP status
- Race/Ethnicity

Choose the student groups you want to compare

Grade level not available on cohort and equity tabs

Race/ethnicity not available on equity tab (available on cohort tab, but organized into a different chart)



Learning Area

- All areas combined
- All areas combined
- Ag, Food and Natural Resource Systems
- Arts, Information and Communications
- Business and Management
- Health Sciences
- Human Resources
- Industrial and Engineering Systems

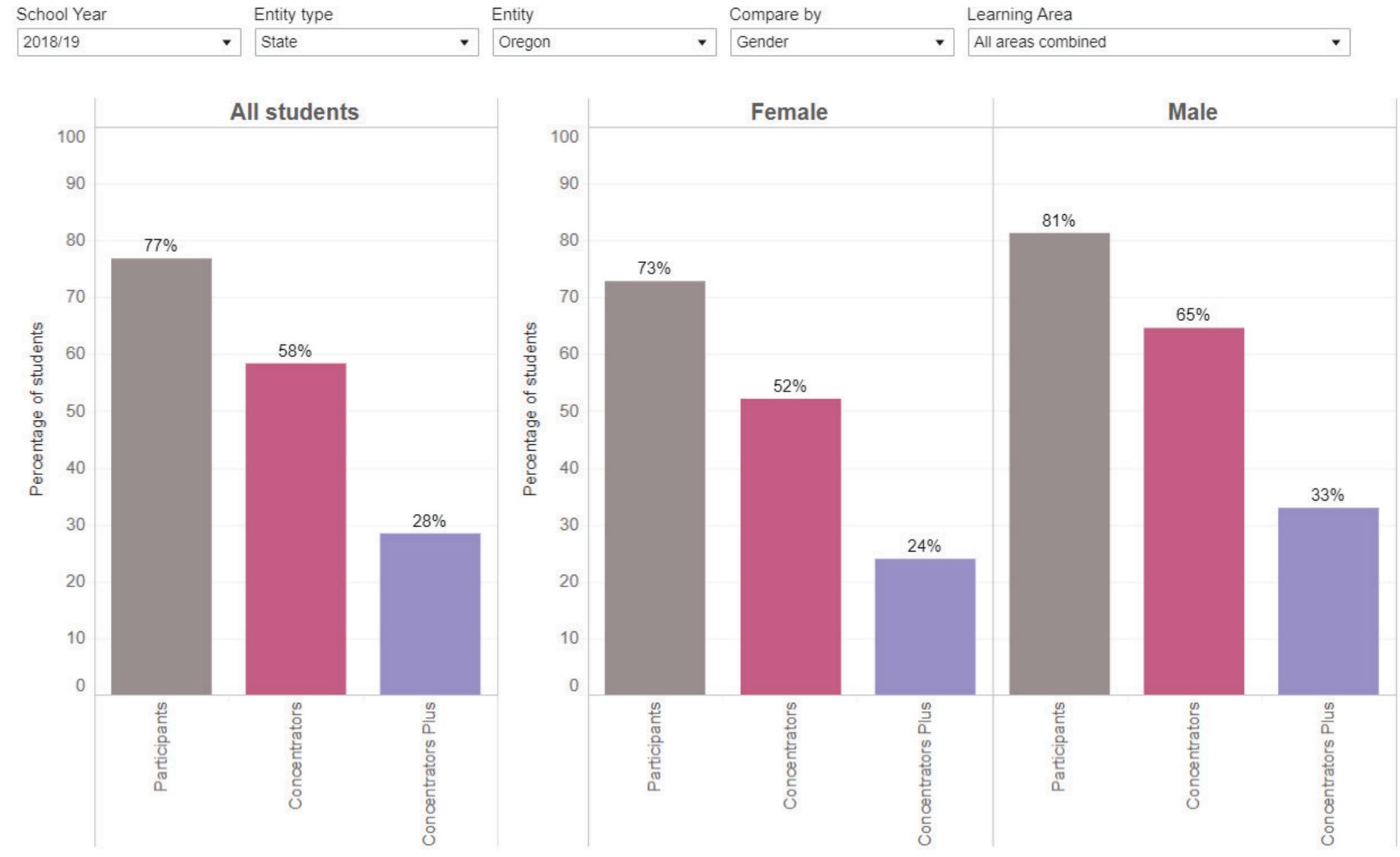
Choose the career area you want to view

Not available on equity tab, as all charts include all career areas

Cohort data

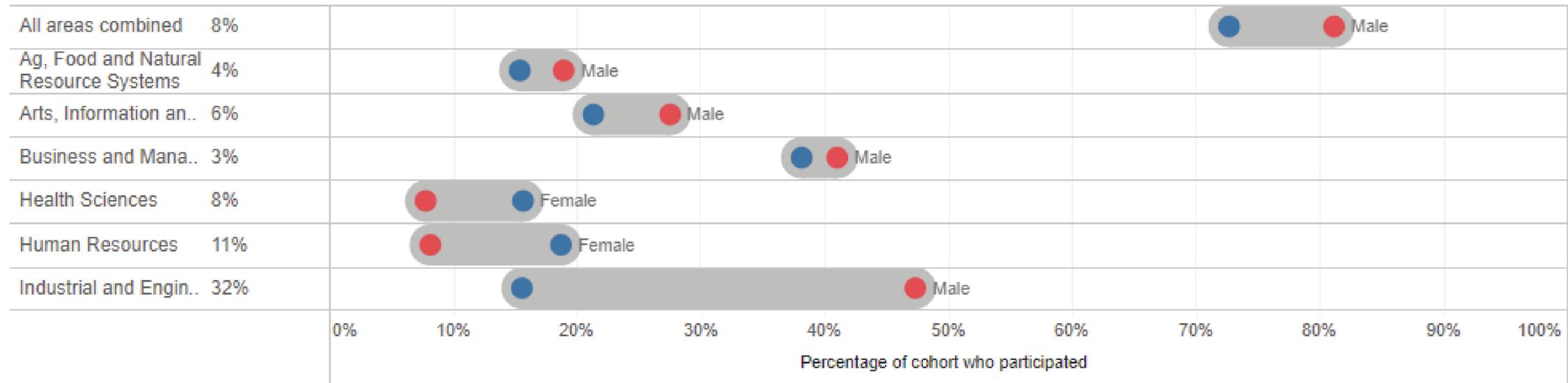
To produce this graph:

1. Click the tab for “Cohort participation”
2. Choose: 2018/19, State, Oregon, Gender, All areas combined
3. Choose different learning areas to see if there is variation



Equity analysis: CTE program participation

Percentage of graduation cohort who participated in CTE

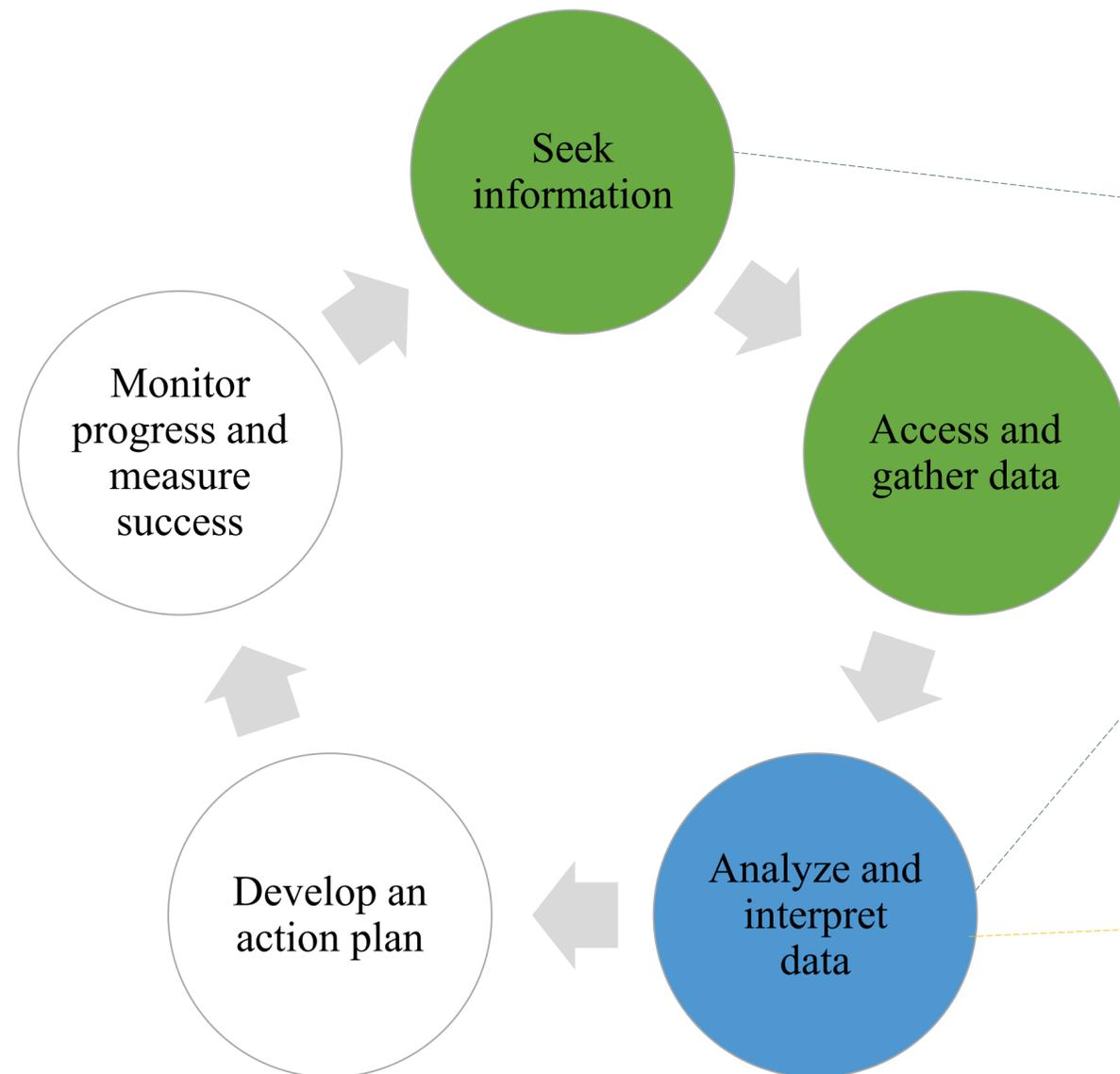


Are there gaps in participation rates for male and female students?

- Click the “Equity exploration” tab
- Choose: 2018/19, State, Oregon, Gender
- Scroll to the first plot titled “Percentage of graduation cohort who participated in CTE”

These plots present the same information as the “Cohort participation” tab but are designed to highlight gaps.

Data inquiry framework



Last time we:

- Asked questions
- Used the dashboard to access and gather data
- Identified equity gap(s) and prepared for a root cause analysis

Today, we:

- Continue the root cause analysis
- Cover evidence-based practices for closing equity gaps

Root cause analysis

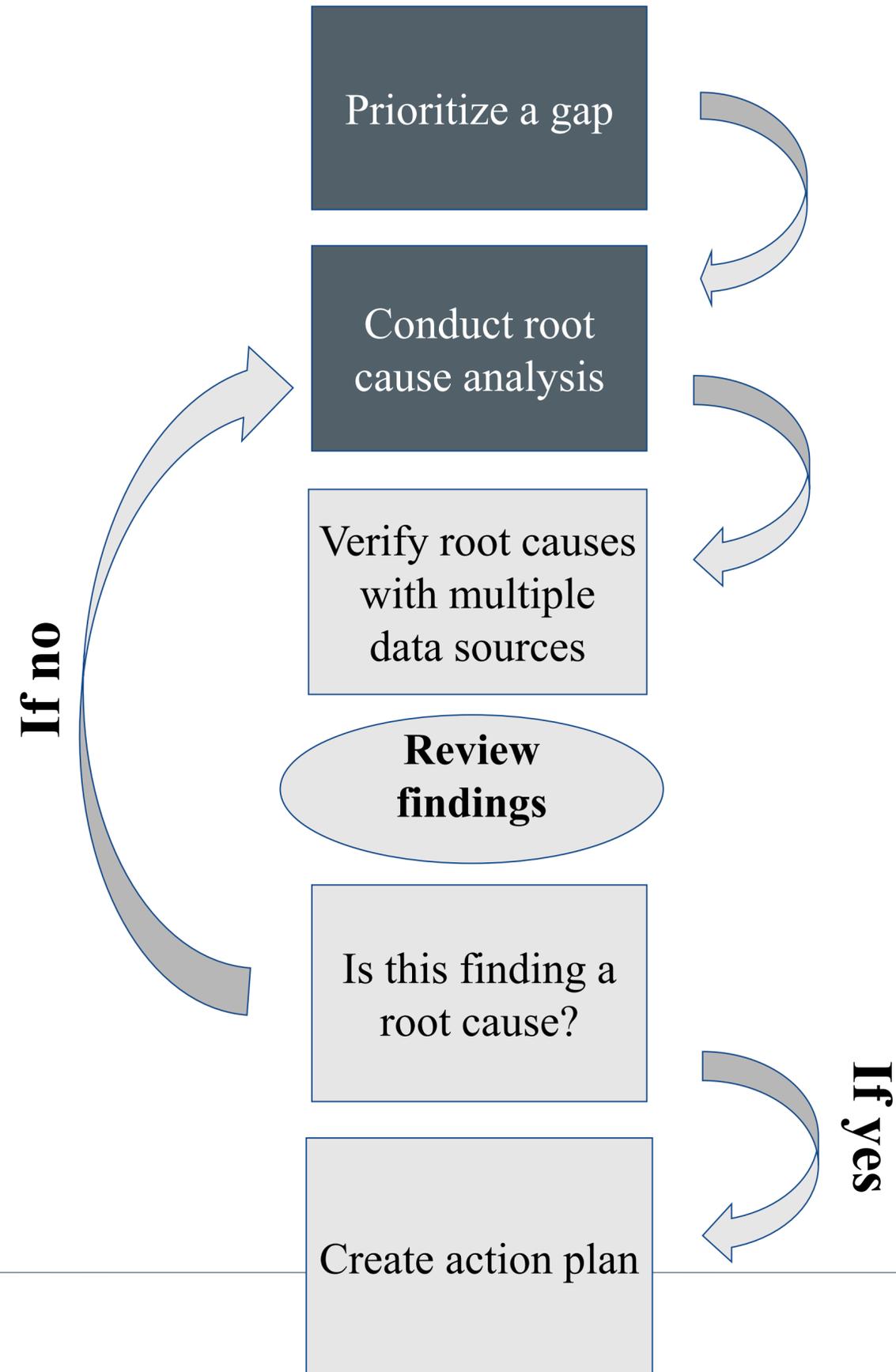
Definition

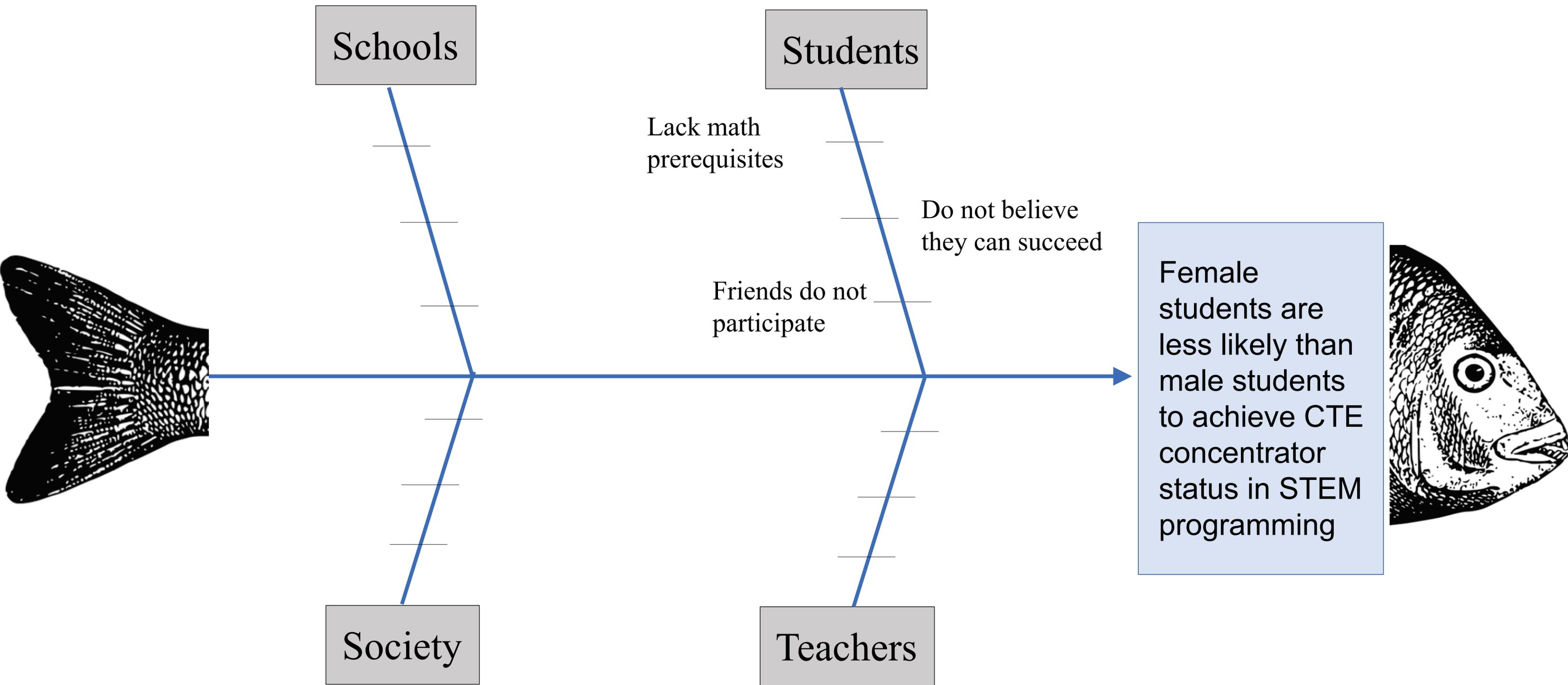
Root causes are the deepest underlying causes of a problematic outcome that, if resolved, would eliminate or substantially improve the outcome.

Guidelines

1. Focus on what you/your team can control
2. Distinguish root causes from contributing factors
3. Verify root causes using multiple data sources

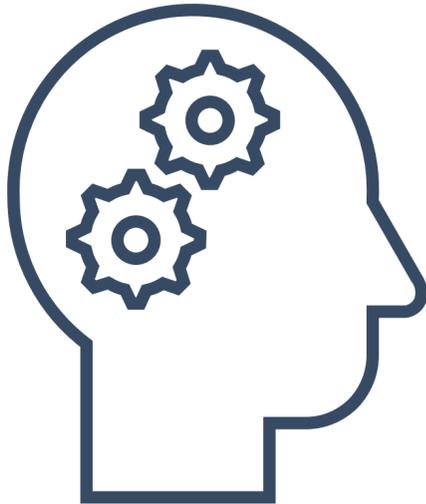
Drilling down





Breakout #1: Using the CTE Participation Explorer to identify or confirm an equity gap in CTE participation and/or retention

Practice session: Access and gather data to identify participation/retention gap in your district/region (Activity #1)



1. You have been assigned to separate breakout rooms.
2. For the remainder of the time:
 - ✓ Explore the data in the database.
 - ✓ Confirm the equity gap you will focus on for today's root cause analysis.
3. Breakout sessions will end at about **9:45 a.m.** We will reconvene then by returning to the main room.

Barriers from the literature related to equity gaps in CTE

Context of systemic racism and biases

Racial segregation and concentrated poverty

Disproportional representation of groups of students based on race, socioeconomic status, gender, or disability into what was then low-quality vocational education

Based on research mostly outside of CTE, expected low academic self-efficacy among students who are victims of racism and stereotyping, resulting in lower outcomes

Access: Stigma

Perceptions of CTE

- CTE is for “low-income students not bound for college” and not “an opportunity for many kinds of students to explore pathways to successful career opportunities.” (Rosen & Molina, 2019, p. 4-5)
- Girls, low-income students, students with disabilities, and students of color do not belong in CTE programs that lead to high-wage, high-demand careers
- Success after high school is directly enrolling in and graduating from a high-quality four-year college
- “IT as a field for white males” (Dalporto & Tessler, 2020, p. 7)

Access: Uneven program availability

- Not all areas have programs
- Not all areas have quality programs
- Fewer (quality) programs in some geographic areas or in areas with certain demographic characteristics
- Unequal access to transportation

“High-quality CTE programs thus are more likely to prevail in areas with more concentrated wealth, where communities can afford to equip classrooms with state-of-the-art equipment and attract experienced teachers with competitive salaries”

-- Estes & McCain, 2019, p. 11

Access: Insufficient information

- All students and families do not have the information they need to make informed choices
 - Whether to pursue CTE opportunities
 - What CTE opportunities to pursue



Access: Recruitment and placement



Recruitment networks are not in place



Recruitment materials are not accessible to all



Diversifying the student body is not an explicit target of recruitment or placement

Access: Advising issues

- Students do not know which CTE program to pick
- Students lack access to knowledgeable adults
- Counselors serve more students than they can serve well
- Counselors are not as diverse as their students and may “hold views on students’ abilities rooted in their race and socio-economic status that factor into the CTE options presented to these students” (Rosen & Molina, 2019, p. 3)

Access: Entrance requirements

Many criteria and processes can be used (e.g., grades, test scores, attendance, interviews, grades, written essays, disciplinary records, multiple documents, multiple deadlines)

Purposes

- Limit access to oversubscribed programs
- May respond to employer or funder requests

Drawbacks

- May not predict success in CTE and/or other student outcomes
- May reinforce inequitable access by discouraging students from applying and preventing them from enrolling
- These may be the same students who are already disadvantaged for other reasons and have no peers or adults to help

Outcomes: Insufficient supports and resources

Insufficient supports and lack of access to adult professionals may result in little support, no role models, and no peers pursuing similar opportunities, which threaten persistence, completion, and transition to and success in postsecondary opportunities

“Students who are the first in their families to obtain a postsecondary education may not have the same social support or access to information as others to help them meet those challenges.”

-- Dalporto & Tessler, 2020, p. 12

“Many underfunded schools and communities are unable to provide students with mentoring or training in soft skills ... many employers ... may unconsciously expect students to behave like adult professionals from the outset.”

-- Rosen & Molina, 2019, p. 6

Outcomes: Lack of adaptation to student needs

“Inconvenient course scheduling, ... classes that meet across far-flung campuses or that must be taken in certain sequences ... students work and use public transportation”

-- Dalporto & Tessler, 2020, p. 14



Outcomes: Lack of funding



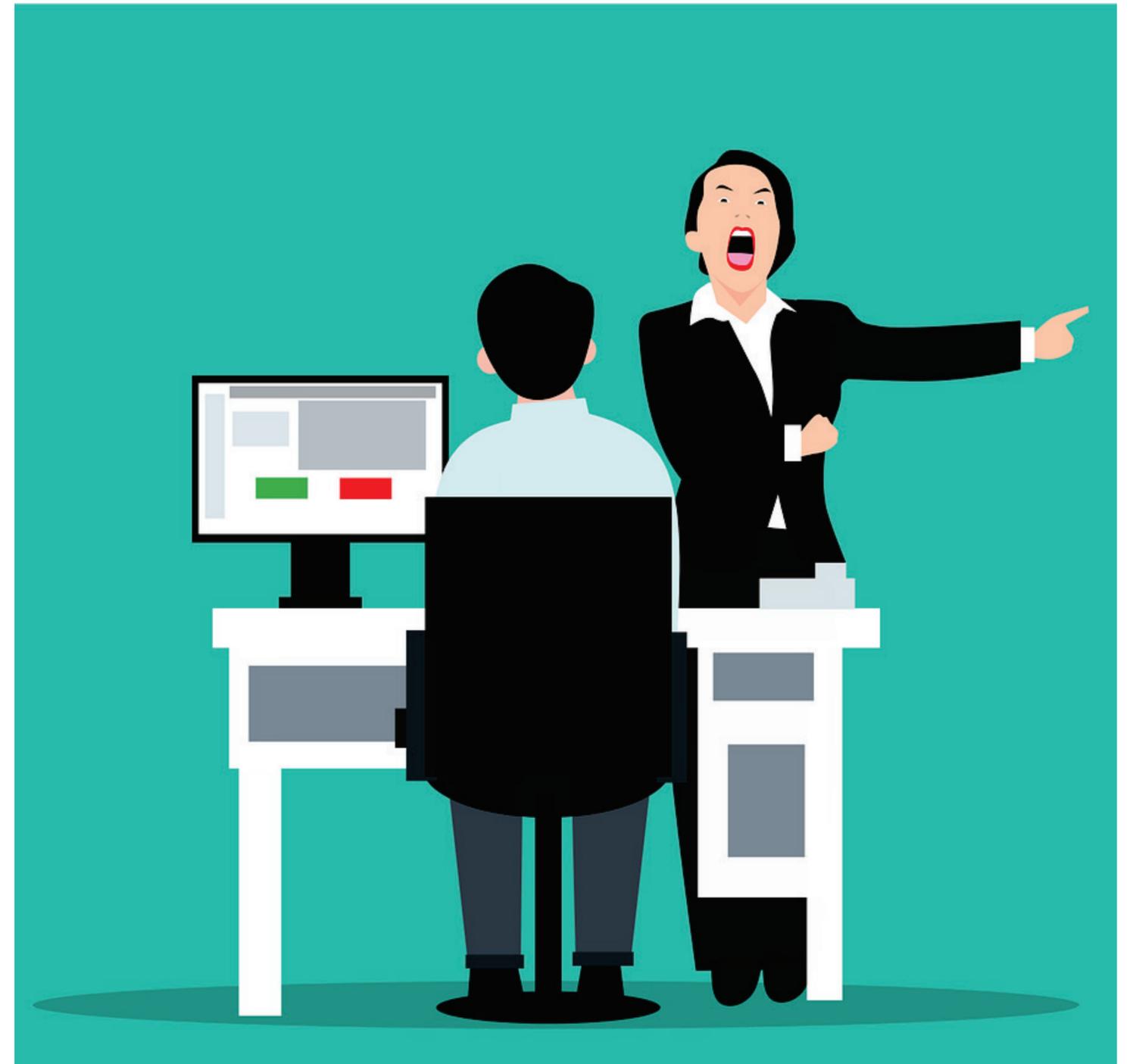
“Unlike the academic programs at community colleges, many CTE programs do not qualify students for Pell Grants. Community colleges have to get creative in seeking funding sources.”

-- Dalporto & Tessler, 2020 p. 14

Outcomes: Underprepared employers

Resulting in...

- Learning opportunities of varied quality
- Unrealistic expectations
- Unconscious bias
- Some opportunities limited to the highest-achieving students



Root causes in Oregon related to equity gaps in CTE

Break

Breakout #2: Conducting your own root cause analysis related to equity gaps in CTE

Practice session: Conduct a root cause analysis related to equity gaps in CTE in your district/region (Activity #2)

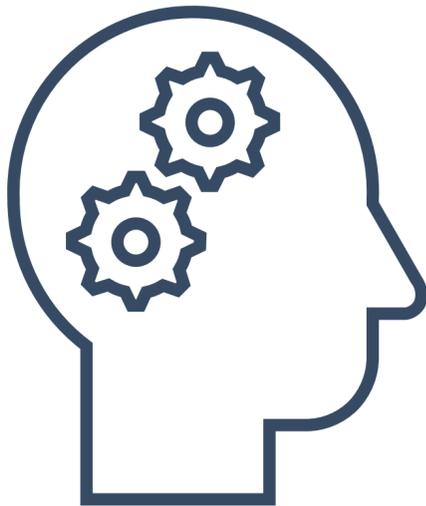


1. You have been assigned to separate breakout rooms.
2. Facilitators are available in the main room to answer any questions you may have about the analysis.
3. For the remainder of the time, you can:
 - ✓ Familiarize yourself with the handout.
 - ✓ Discuss root causes with individuals in your breakout room.
 - ✓ Be sure to probe using the five whys!
4. Breakout sessions will end at about **10:40 a.m.** We will reconvene at **10:40 a.m.** by returning to the main room.

Reminder: Distinction between root cause and contributing factor

- Conditions that collectively increase the likelihood of a problematic outcome → Contributing factors
- Conditions that by themselves cause the problem → Root causes
- The problem would have occurred even if this factor was absent → Contributing factors
- The problem would *not* have occurred if the cause was absent → Root causes

Practice session: Conduct a root cause analysis related to equity gaps in CTE in your district/region (Activity #3)



1. Review your root causes and flag what is a root cause and what is a contributing factor.
2. Continue root cause analysis focusing on root causes, not contributing factors.
3. Breakout sessions will end at about **10:55 a.m.** We will reconvene at **10:55 a.m.** by returning to the main room.

Strategies to address barriers from the literature related to equity gaps in CTE

Addressing the context of systemic racism and biases

Identify inequities by analyzing recruitment data; retention data; and outcomes according to race, ethnicity, gender, socioeconomic status, disabilities, English language ability, and other relevant characteristics

Determine the extent to which the demographics of students enrolled in CTE programs reflect the demographics of the school district/community

“Use methods such as surveys and focus groups to regularly assess students’ and their families’ experiences and to engage students and their families in addressing equity concerns” (Kantrov, 2017, p. 15)

Access: Addressing stigma

- Market CTE programs as beneficial opportunities, starting in middle school
 - “Provide (parents) information on the academic and career courses offered and the work-based learning opportunities available, and how both can further students’ education and employment ... emphasizing the transferrable skills students will gain from CTE classes, and the value employers place on these skills ...” (Rosen & Molina, 2019, p. 5)
- Require that all students in a high school or a minimum percentage of traditionally underserved students participate in CTE (see Kantrov, 2017, pp. 10-11 for examples)
- Create the conditions of a positive school culture where all students feel welcome even in pathways where they are traditionally underrepresented (see Kantrov, 2017, pp. 11-14 and Estes & McCain, 2019, p. 14 for examples)

Access: Addressing uneven program availability

Ensure...

- “that each learner experiences rigorous academics, that academic and technical instruction are integrated and reinforced within a program of study, and that career exploration starts early so there can be a smooth handoff once learners officially enter a program of study,” and
- “that all programs are aligned to priority industry sectors, teach the latest practices and techniques, are facilitated by experienced, well-trained educators, and give learners the opportunity to apply their learning in a real-world setting while accumulating early postsecondary credit and working toward an industry-recognized credential” (Estes & McCain, 2019, pp. 13-14).

Access: Addressing insufficient information

What

- Use surveys and focus groups to understand what students and parents know and think

Who

- Have dedicated outreach staff with a clear charge and training
- Recruit community members, peers, school staff to share information

How

- Reach out to families; do not wait for them to come to you
- Organize parent nights, visits to academies, meetings with employers, and CTE fairs

Access: Addressing recruitment and placement

- Introduce current CTE students and alumni to the community
- Make equity an explicit goal of recruitment including adapting outreach and marketing to student and families' culture and language
- Strive to make programs' student body reflect the demographics of the district/community without ignoring student preferences

Access: Addressing advising issues

Counselors

- Ensure counselors serve a manageable number of students
- Ensure counselors do not limit students' options based on their demographic characteristics

Student career options

- Expose students to careers in middle school and even elementary school, before they need to commit to a pathway
- Encourage students to consider careers that are not traditional for them, especially those leading to high-demand, high-wage jobs

Mapping

- Clearly lay out expected careers and salaries for each level of training and experience
- Describe the range of postsecondary options and the steps to take to get there

Access: Addressing entrance requirements

- To avoid imposing additional entrance requirements that may discourage individuals from applying or prevent them from applying successfully by making the application process particularly burdensome, explore using a lottery rather than entrance requirements if there are more applicants than available spots
- Set aside seats for students, e.g., students “who are identified as having a certain number of risk factors for dropping out” (Rosen & Molina, 2019, p. 5)

Access: Addressing insufficient supports and resources

Instruction

- Integrate core and technical content
- Train on professional skills concurrently with technical courses and/or through bridge programs

Community

- Create a community where students explore career interests together and motivate one another
- Place students together in an internship

Preparation for postsecondary and beyond

- Provide experiences such as work-based learning
- Have counselors who focus on CTE students

Outcomes: Addressing lack of adaptation to student needs



- Flexible scheduling e.g., cohort scheduling and block scheduling
- One central place/transportation
- Shorter programs

Outcomes: Addressing lack of funding

- Offer paid work-based learning experiences
- Partner with local nonprofit organizations and/or pursue grant funding to help cover costs to students
- Offer career pathways that are required under the Workforce Innovations and Opportunities Act (WIOA) so participating low-income CTE students can benefit from WIOA-funded support services



Outcomes: Addressing underprepared employers



Present work-based learning as “building a ‘talent pipeline’ for employers, as opposed to just fulfilling an altruistic mission” (Rosen & Molina, 2019, p. 7).

Training employers to

- Work with youth
 - e.g., holding orientations, setting age-appropriate expectations for students in workplace settings
- Refrain from using deficit language
 - e.g., “at-risk,” “low-skilled,” “disadvantaged” (Rosen & Molina, 2019, p. 7)

Strategies to address root causes from Oregon related to equity gaps in CTE

Closing

Contact us



REL Northwest at Education Northwest
1417 NW Everett Street, Suite 310
Portland, OR 97209

ies.ed.gov/ncee/edlabs/regions/northwest



@relnw



800-547-6339



References (1 of 3)

Arneson, A., Hodara, M., & Klein, S. (2020). *Career and technical education in Oregon: Exploring who participates in high school and the outcomes they achieve*. Portland, OR: Education Northwest, Regional Educational Laboratory Northwest. <https://eric.ed.gov/?id=ED607349>

Bocala, C., Henry, S. F., Mundry, S., & Morgan, C. (2014). *Practitioner data use in schools: Workshop toolkit* (REL 2015–043). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory, Northeast & Islands. <https://eric.ed.gov/?id=ED551402>

Dalporto, H., & Tessler, B. (2020). *Voices from the field: How community colleges are advancing equity in career and technical education*. New York: MDRC. <https://eric.ed.gov/?id=ED604541>

Estes, A., & McCain, B. (2019). Four strategies to address equity in CTE. *State Education Standard*, 19(3), 10-14. <https://eric.ed.gov/?id=EJ1229646>

References (2 of 3)

Harris, J. C., Jonas, D. L., & Schmidt, R. A. (2021). *Virginia high school graduates' career and technical education credentials: Top credentials over time and across student groups* (REL 2021–063). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory, Appalachia. Retrieved April 23, 2021 from <https://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=4644>

Kantrov, I. (2017). *Achieving educational equity and justice in career academies: Challenges and promising strategies*. Ford Motor Company Fund. Retrieved March 29, 2021, from https://www.fordngl.com/media/k2/attachments/FordNGL_EquityReport2017.pdf

Kekahio, W., & Baker, M. (2013). *Five steps for structuring data-informed conversations and action in education* (REL 2013-001). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Pacific. <http://eric.ed.gov/?id=ED544201>

References (3 of 3)

Kim, E. H., Flack, C. B., Parham, K., & Wohlstetter, P. (2021). Equity in secondary career and technical education in the United States: A theoretical framework and systematic literature review. *Review of Educational Research*, February 2021, 1-41.

Oregon Department of Education. (n.d.). *Oregon equity lens*. Retrieved from <https://www.oregon.gov/ode/students-and-family/equity/equityinitiatives/Documents/OregonEquityLens.pdf>

Preuss, P. G. (2003). *School leader's guide to root cause analysis: Using data to dissolve problems*. New York, NY: Routledge. <https://eric.ed.gov/?id=ED480880>

Rosen, R., & Molina, F. (2019). *Practitioner perspectives on equity in career and technical education*. New York: MDRC. <https://eric.ed.gov/?id=ED596458>

Silverstein, R. (2014, November 5). *Data inquiry for school improvement: Root cause analysis [REL Mid-Atlantic Webinar]*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory, Mid-Atlantic. <https://eric.ed.gov/?id=ED560600>