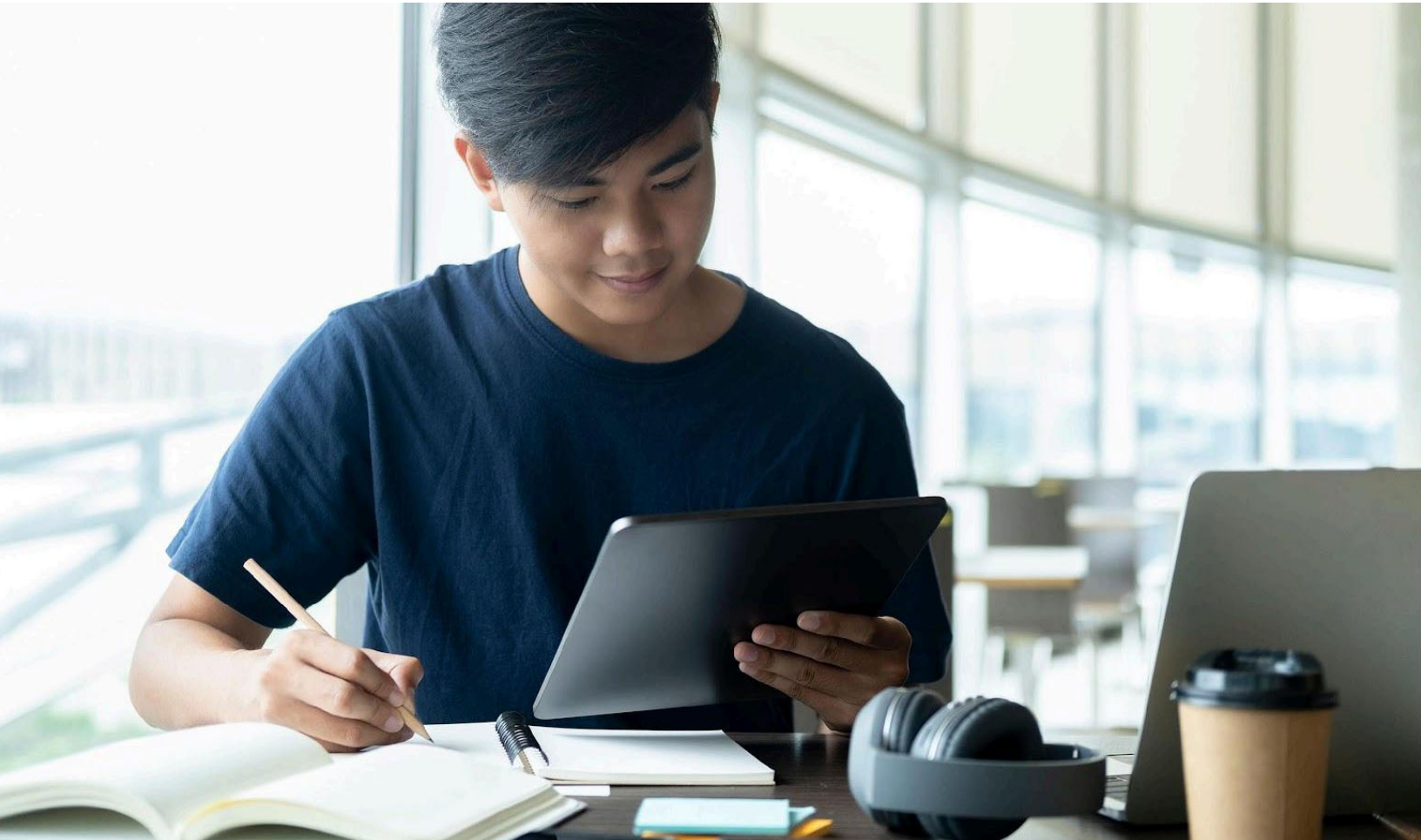# COLORADO
Department of Higher Education

Transforming Education Practices
Through Open Educational Resources

2024

The Colorado Department of Higher Education
Report to the Colorado Commission on Higher Education,
Open Educational Resources Council, Joint Budget Committees
and Education Committees of the General Assembly of Colorado

Statute CRS: 23-1-134 (3)

COLORADO
Department of Higher Education

Prepared and submitted by
the Colorado Department of Higher Education with the OER Council
under the Executive Leadership of Dr. Angie Paccione
Pursuant to the statutory authority of §23-1-134

December 2024

1600 Broadway, Suite 2200, Denver, CO 80202

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Dear Members of the Colorado General Assembly and the Colorado Commission on Higher Education:

Containing costs for students in higher education is a significant priority for the Colorado Department of Higher Education and the state of Colorado. Open educational resources (OER) are educational materials licensed to be freely shared and available at no cost to students. The Department champions OER as a strategic means of meeting the demand for affordable, high-quality learning and teaching materials. We submit the 2024 Open Educational Resources Report – Transforming Educational Practices through Open Educational Resources — pursuant to CRS 23-1-134.

The Colorado OER Grant Program has completed its fifth year. Grantees have converted 1,973 courses to OER, and more than 140,000 Colorado students are enrolled in courses utilizing open educational resources annually. In five years, OER has saved students more than **$42.1 million**, representing an **astonishing ninefold return on the state's investment.**

Zero textbook cost "z-degrees" that provide students with pathways to complete their degree with no textbook cost are also growing. Colorado State University Pueblo has successfully implemented z-degrees in bachelor of arts in Spanish and master of arts in social work, Colorado School of Mines launched a master of science in mechanical engineering, University of Colorado Denver is nearing completion of a z-degree bachelor of science in mathematics, and multiple community colleges offer associate z-degrees. The sixth cycle of OER grants features 10 new z-degrees ranging from theater at Red Rocks Community College to a collaborative nursing z-degree between Fort Lewis College and University of Colorado Anschutz.

Colorado has cemented itself as a leader in open education with the grant program, z-degree development, and the dedication of educators across the state who pursue OER to improve equity and pedagogy in their classrooms. Open Education and OER remain a strategic priority for affordability, innovation, and equity in higher education in Colorado.

Signed,

Angie Paccione
Executive Director
Colorado Department of Higher Education

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Executive Summary

Open Educational Resources (OER) are freely available online teaching and learning materials accessible to students, instructors, and self-learners. OER textbooks and other learning resources are openly licensed, typically under a Creative Commons License[1], with legal copyright permission for instructors and students to freely retain copies, re-use, revise, remix, and share. OER provides students materials on the first day of class, access into the future after the course ends, and the most affordable cost of $0.

Nationally, public two-year students spend an average of $1,470 and public four-year students spend $1,250 per year on books and supplies[2]. Over half of U.S. students report paying $200 or more for their course materials per term with 31% reporting paying more than $300[3]. Affordable course materials are a national issue with 45% of surveyed students reporting that the cost of course materials affected their institution or degree choice, and 53.5% of students in a second survey indicated that they simply did not purchase a required textbook due to its cost[4]. In Colorado, 48% of students at Arapahoe Community College said textbook costs impacted their course selection[5].

Expanding open education and promoting the development of OER has been a priority for the Colorado Department of Higher Education (CDHE) since 2018. The promotion of OER is an invaluable strategy for providing more affordable, high-quality, accessible, and equitable learning materials to Colorado students. With many international and national organizations recommending the implementation of OER to improve education, including UNESCO[6] and SPARC[7], Colorado stands proud as a champion of open education and OER as key components to increase the affordability of higher education and innovative pedagogy to support students and educators.

Colorado students have saved more than $42.1 million on textbook costs over five years from a $4.35 million investment from the state in the Colorado OER grant program. Additionally, more than 140,000 students have been enrolled in the last year in one of the 1,973 courses that converted to OER under the state's grant program. Notable examples of how OER has been embraced at institutions across the state include that 23% of course sections at Arapahoe Community College are OER, 90% of guaranteed transfer pathway courses at Colorado Northwestern Community College are

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[1] About CC Licenses: https://creativecommons.org/share-your-work/cclicenses/
[2] 2023 Trends in College Pricing: https://research.collegeboard.org/trends/college-pricing
[3] 2023 National Survey on Student Course Material Affordability: https://www.bayviewanalytics.com/reports/2023_student_course_material_affordability.pdf
[4] 2022 FLVC Textbook Survey and Instructional Materials Survey: https://cdn.prod.website-files.com/646e59f2d76c6e8c0c5223de/64de6132148ed7739bc186e4_FLVC%20Textbook%20Survey%20Report%20-%202022.pdf.
[5] 2022 Arapahoe Community College Student Survey results submitted in August 2023 to CDHE as part of OER grant report materials. Further details: https://cccs.libguides.com/c.php?g=1312957&p=9652073
[6] UNESCO's mandate in OER: https://www.unesco.org/en/open-educational-resources/mandate
[7] SPARC, Scholarly Publishing and Academic Resources Coalition: https://sparcopen.org/open-education/

OER, 11.5% of all courses offered at Metropolitan State University of Denver are OER, and 11% of all courses offered at University of Northern Colorado are OER.

In the 2023-2024 OER grant period, Colorado State University Pueblo completed the creation of its z-degree master of science in social work and launched a new zero textbook cost Spanish for health professions certificate, and University of Colorado Denver continued the development of a z-degree bachelor of science in mathematics. This builds upon the already established z-degree bachelor of arts in Spanish at Colorado State University Pueblo, z-degree master of science in mechanical engineering at Colorado School of Mines, and the multiple associate of arts and associate of science z-degrees offered at Colorado institutions, including Metropolitan State University of Denver and Community College of Denver. On the horizon under the 2024-2025 OER grant are ten more z-degree initiatives from theater at Red Rocks Community College and an MBA at Western Colorado University to a collaborative nursing degree between Fort Lewis College and University of Colorado Anschutz.

FIGURE 1: **Compounded OER Grant Program Cost Savings Cohorts 1-5 (Assuming Continued Use)**
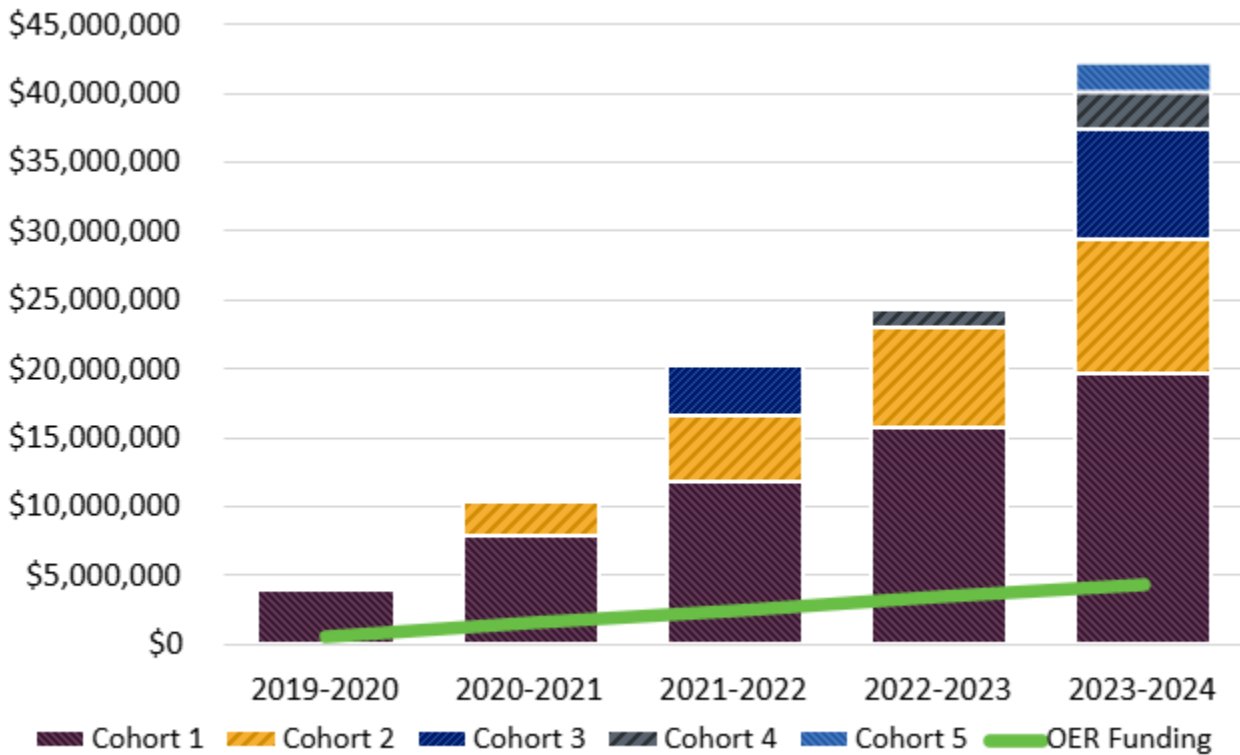
	Cohort 1 Savings	Cohort 2 Savings	Cohort 3 Savings	Cohort 4 Savings	Cohort 5 Savings	Funding
2019-2020	$3,925,488					$550,000
2020-2021	$7,850,976	$2,411,695				$1,000,000
2021-2022	$11,776,464	$4,823,390	$3,619,867			$875,000

2022-2023	$15,701,952	$7,235,075	$5,809,689	$1,377,384		$968,803
2023-2024	$19,627,440	$9,646,780	$7,999,5110	$2,754,7680	$2,139,2020	$960,017

FIGURE 2: **Growth in Annual OER Course Enrollment Cohorts 1-5**

	Annual student enrollment in OER courses
Cohort 1 / 2019 - 2020	23,958
Cohort 2 / 2020 - 2021	30,464
Cohort 3 / 2021 - 2022	64,677
Cohort 4 / 2022 - 2023	113,028
Cohort 5 / 2023 - 2024	140,385

Institutional grantees reported savings of more than $3.9 million to the students of Colorado in the first year of the grant program, $2.4 million in year two, $3.6 million in year three, $1.3 million in year four, and $2.1 million in year five. The overall cumulative student cost savings of $42.1 million continues to represent more than a nine-fold return on the state's investment in this initiative[8]. The change in new cost savings from year one to five is due to institutions first focusing on implementing OER for high enrollment courses, and now turning to address comprehensive offerings across degrees with OER implementation frequently occurring after the reporting period. Assuming OER from each grant cycle continues to be used with similar enrollment levels, those numbers are expected to compound year-over-year and will exceed $54 million in the spring 2025 semester.

Containing costs for students in postsecondary education remains critical to CDHE and the state of Colorado. OER offers Colorado a means to help improve affordability and support high educational attainment and talent development. Thanks to the support of the legislature, and the instructors, librarians, instructional designers, and administrators dedicated to making education more readily accessible, Colorado has become a national leader in OER development. The high-quality resources produced and adapted through this program are sure to enhance affordability and accessibility of education in Colorado and beyond.

23.4%
of course sections at Arapahoe Community College are OER

90%
of guaranteed transfer pathway courses at Colorado Northwestern Community College are OER

11%
of courses at Metropolitan State University of Denver and the University of Northern Colorado are OER

[8] The total allocation for grant funds in the first five years of the OER grant program were $4,353,820 and are further detailed in the budget and institutional profile sections of this report.

COLORADO **OER DASHBOARD**

Grant Years 1-5:

$42.1
million in estimated student cost savings over five years

from state investment of
$4.35
million in OER grants

▶ **actual return on investment**

9.6x

ROI goal

3x

Reported cost savings to students over five years of OER grants exceeds 9 times the return on investment of state dollars
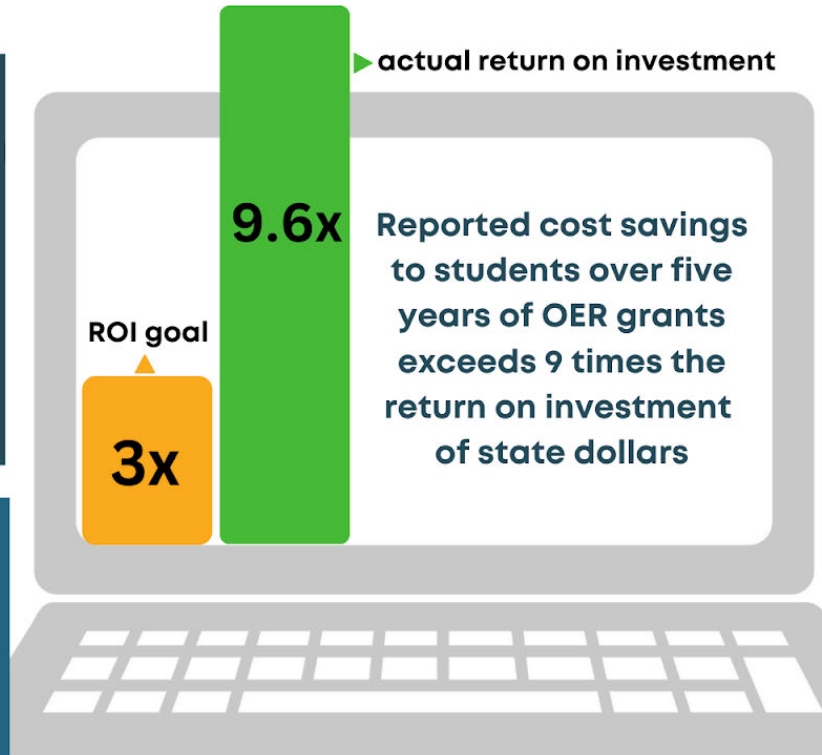
2023-2024 COHORT 5 GRANTEES

25 Institutional grants

2 small group grants

22 Colorado public institutions

The 22 public institutions reported a collective **$13 million** in annual student cost savings from OER and ZTC courses.

1,973
course have been converted to OER by grantees over five years

$2.1
million in cost savings to students from the fifth OER grant cycle

140,385
students in Colorado are enrolled in a course with OER grant materials annually

Key Findings

Over the last five years, CDHE and the OER Council have established an innovative community for educators exploring open education. Many key findings have remained the same through multiple years of reporting, suggesting a strong foundation of meaningful impact that will continue to grow in future grant cycles. Most significantly, the below findings demonstrate the impact of OER in Colorado and needed support within the Colorado open education community.

Return on Investment

OER implementation has resulted in a striking return on the state's initial investment. Colorado students have saved an estimated $42.1 million over five years from the state's investment of $4.35 million in grant funding - a nearly tenfold return on investment - and enthusiasm for OER development has continued to increase across the state.

Key Performance Indicators:
- In the fifth grant cycle, $2,139,202 in student savings was reported across 22 grantee public institutions of higher education.
- Assuming OER from each grant cycle continues to be used with similar enrollments, those numbers are expected to compound year-over-year. From these compounded savings, it is estimated that the first five years of the grant program will have saved Colorado students over **$54 million in textbook costs by the 2025 spring semester**.
- Grantees have now converted **1,973 courses at Colorado institutions through OER creation or adoption**. In the first year of the grant program, over 100 courses were addressed by grants. This impact has continued to rise with grantees reporting 302 new courses converted to OER in the grant program's fifth year. More than 140,000 students[9] in Colorado are reached in courses with OER materials funded by the grant program annually. Additionally, a collective 3,785 courses/sections are reported by institutions as being OER or zero textbook cost at their institutions. This larger count includes both individual courses or sections depending on the reporting institutions, courses using free or library materials, and courses that typically do not have assigned resources. CDHE and the OER council will work with institutions over the coming year to gather more specific data for OER, and separate sections from courses for a more specific estimate of OER use across the state.
- One example of a high-impact return on investment is from Front Range Community College. English Composition I and English Composition II adopted OER, changing the educational experience of **8,744 students and saving $306,040** from just two courses.

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[9] Cumulative course titles, student impact, and savings as reported by cohort five grantees in their 2024 final reports. Student counts are considered duplicated as one individual student may be enrolled in multiple courses using OER as their primary resource.

- Grantees provide separate annual cost savings for all courses at their institution that utilize OER. The estimated cost savings experienced by Colorado students in the **2023-2024 academic year is over $13 million**. This cost savings is across all zero textbook cost courses, which includes courses converted outside the grant program or that may be using library resources. This estimate is $1 million greater than the grant program's projected cost savings, which is most likely due to either OER adoption outside of the grant program or cost savings for courses implemented after the grantee's final reports. As part of a retrospective report on the grant program, CDHE and the OER council are presently working with institutions to determine which grant-funded courses and sections are still being taught with OER.

Z-degree Momentum

OER is a vital tool in transforming degrees to zero textbook cost. Degree programs at institutions across the state have embraced OER to the extent that students can complete certain associate, bachelor, and master degrees without any textbook cost. Many z-degrees supplement OER with free resources that are not under an open-source license, or library resources that are free to the student.

Present z-degrees in Colorado
- Colorado State University Pueblo has successfully implemented a z-degree bachelor of arts in Spanish z-degree in 2022, zero textbook cost Spanish for health professionals certificate in 2024, and a z-degree master of arts in social work in 2024;
- Colorado School of Mines launched a z-degree master of science in mechanical engineering in 2023;
- Multiple institutions offer associate of arts and/or associate of sciences z-degrees, including Community College of Denver and Metropolitan State University of Denver;
- The Colorado Community College System completed a two-year grant in 2024 that developed a full 12-course OER curriculum for a brand new bachelor of applied science in business. Since it is a brand new offering, there are no associated cost savings included in this grant program's cost savings total. However, it is estimated that course materials for a non-OER program would be $1,832 per student;
- As part of the sixth cycle of OER grants University of Colorado Denver is completing work for its z-degree bachelor of science in mathematics; Arapahoe Community College is beginning a z-degree in early childhood education; Western Colorado University and Front Range Community College are developing a z-degrees in business; Red Rocks Community College will debut an associate of arts in theater arts and an associate of applied science in theater technology; Metropolitan State University of Denver is working on a bachelor's of arts and sciences in chemistry, bachelor of science in biochemistry, and bachelor of arts in communication studies; and Fort Lewis College and University of Colorado Anschutz are developing a z-degree pathway for nursing students;

- Additional z-degrees have been proposed for the seventh cycle of OER grants that will run from February 2025 to June 2026.

Cultivating an Open Education Community

The OER Council and CDHE coordinate the bulk of funding and professional development for the statewide open education community, providing the best opportunity for the broadest impact.

Key Performance Indicators
- Collectively 87% of eligible institutions have received funding from the CDHE OER Grant Program[10] overall, signaling interest in open education across the State[11]. In the fifth year of the grant program, only 70% of eligible institutions were awarded a grant – up from 59% in cycle four. For cohort 6 awards, 59% of eligible institutions applied and were awarded a grant.
- Institutions that have not applied previously or have not consistently applied report staff and faculty capacity, rather than interest in OER, as the reason. The OER Council continues to aim to award OER grants to all eligible institutions and is implementing an ongoing professional development program for the Colorado open education community.
- Over 180 open education community members registered for the 2024 Colorado OER Conference held in Denver at the Auraria Campus in May.
- CDHE and the OER Council held seven professional development training sessions online in 2023-2024 on a variety of topics, including Pressbooks, copyright, automatic textbook billing, and panels featuring OER grantees and z-degree development.
- Twenty-seven faculty and librarians in Colorado earned a Creative Commons Certificate[12] in 2023-2024. CC certificates are earned through a 10-week online course. Participants develop an expertise in open licensing, Creative Commons, and the ability to help others understand and implement open licenses.
- Financial support of in-person and virtual events as part of the 2024 Open Education Week celebrations in March at Metropolitan State University, Western Colorado University, Adams State University, and University of Northern Colorado.
- Twenty Colorado instructors, librarians, and instructional designers traveled to Providence, Rhode Island to attend the 2024 Open Education Conference October 8-10 and the OER Council sponsored 71 virtual scholarships to attend the hybrid conference.

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[10] One community college and 3 Technical Colleges have not applied directly for funding despite belonging to the Colorado Community College System which has received funding in all three cycles. All other eligible institutions have received funding in either the form of a grant or professional development funding in the first three years of the program, either directly or as part of system-wide initiatives.

[11] Note: several system or inter-institutional grant initiatives have been funded. Since the University of Colorado system grant specifies all four University of Colorado campuses, these institutions are included in this data.

[12] The Creative Commons Certificate is a professional development training for educators and academic librarians to provide comprehensive knowledge in open licenses, open educational resources, and open pedagogy. Learn more about CC Certificates: https://certificates.creativecommons.org

Challenge of adequate staffing

A key finding in grantee reports was the ongoing challenge to adequately support the grants and larger OER initiatives, primarily due to staffing. One individual grantee reported that the largest challenge of the grant project was the fiscal responsibilities to manage their grant. Many institutions lack an established institutional infrastructure to support OER initiatives and report understaffed libraries and institutional research offices. Below is a list of cited challenges by institutions in implementing OER.

Key Challenges
- Institutions without dedicated OER staff, such as an OER coordinator, OER librarian, or even instructional designers employed at the institution.
- One Scholarly Communications Librarian who has OER as part of their job scope noted that the "sheer breadth of the OER-related things involved with producing so many OER products can be overwhelming."
- Staff leaving an institution, such as visiting faculty members not having their contracts renewed due to budget issues, institutional research staff turnover, and the departure of library staff that previously was the primary coordinator or resource for OER across an institution.
- Many non-OER materials may come with ancillary materials, such as quiz banks, homework systems, and instructional videos. OER materials can increase faculty workload beyond adopting the textbook due to instructors needing to create new ancillary materials. One institution shared that instructors estimated 1-75 additional hours per semester to use OER compared to traditional textbooks with an average of 43 hours of additional time per semester per course. A long-term solution would be to develop high-quality, open-source ancillary materials.
- Smaller and/or rural institutions report minimal or no library staff with faculty juggling the responsibilities of teaching, academic advising, and serving on multiple committees. Some institutions like Colorado Northwestern Community College and Fort Lewis College have been incredibly successful despite these challenges, Northeastern Junior College has achieved success but only has the capacity to apply for grants every other year, and other institutions have applied once or not at all to the grant program. It is likely that the reason some institutions have never applied to the grant program is due to their staffing capacity, and not a lack of interest in OER. It is a chief goal of CDHE and the OER council to engage these institutions in community development over the next year.

Background

Prior Legislation and Reports

In 2017, to address the issue of textbook/course material affordability and gauge interest for OER in Colorado, the legislature and the Governor, through S.B. 17-258, called for the creation of a statewide

Open Educational Resources Council charged with developing recommendations for an OER initiative serving higher education in Colorado. The 2017 report on OER found overwhelming support for further exploration and implementation of OER in the state, particularly from the student respondents who comprised a significant fraction of survey respondents. Based on the findings of the statewide survey, a broad survey of the national landscape, and expert opinion informed by data, the Council and Department made the recommendations in their 2017 report[13]: scale the use of OER through targeted grant funding, support professional development through OER interest groups and an annual statewide OER conference, and establish structure and staffing at the state level through a state OER Council, a full-time staff member in the Colorado Department of Higher Education, and an annual report.

Legislation from 2018

In 2018, H.B. 18-1331, sponsored by Representatives Rankin and Young and Senator Lundberg, was signed into law by Governor Polis. Consistent with many of the recommendations of the Council, this bill appropriated funds for the work of the OER Council including a dedicated staff member at the Department, continued existence of the OER Council, and required appointment of Council members through the fall of 2021. Dedicated funds for the OER Council's work and the statewide grant program were laid out through 2020, with the overall aim of increasing the affordability of higher education in Colorado. Officially, the bill's purpose was "expanding the use of open educational resources at public institutions of higher education, and, in connection therewith, creating the Colorado Open Educational Resources Council, creating a grant program to support the creation and use of open educational resources, and making an appropriation[14]." As part of executing the identified responsibilities of this legislation by building a culture around open education as a best practice in Colorado institutions of higher education, Department staff have set forth an agenda to provide staff and faculty with professional development and engagement opportunities at the state level.

Legislation from 2021

Funding for the OER grant program was set to expire with the third cohort in November of 2021. Due to the success of the program to date and the incredible return on Colorado's investment, the Colorado General Assembly deemed this program worthy of continued support stating: "that it is in the best interests of the state to continue and expand the open educational resources grant program to support the continued creation and use of open educational resources for individual courses and to support the creation and replication of zero-textbook-cost degree programs[15]." State Senators Chris Hansen, Bob Rankin, and Dominick Moreno and House Members Leslie Herod and Julie McCluskie introduced S.B.

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[13] Report to the Joint Budget Committee and The Education Committees of the General Assembly Open Educational Resources in Colorado November 2017:
https://highered.colorado.gov/Publications/Reports/legislative/OER/OER_Nov2017.pdf

[14] Higher Education Open Educational Resources: https://leg.colorado.gov/bills/hb18-1331

[15] Use Of Open Educational Resources In Higher Education: https://leg.colorado.gov/bills/sb21-215

21-215 to the Colorado General Assembly in April 2021 to revise Statute 23-4.5-106 moving the repeal date from November 1, 2021, to November 1, 2026. In May of 2021, S.B. 21-215 was signed into law by Governor Polis. This bill also appropriated $1,108,200 to the grant program for the 2021-2022 state fiscal year, with funds allocated for dedicated staff within the department to manage this program. OER are certain to influence the future of higher education; as many OER programs across the state are in the early stages of implementation, continued support from the State is necessary to accelerate adoption and propel Colorado forward as a leader in this area[16].

Open Licenses and Accessibility

Grantees agree to the following terms of receiving the funds to support their OER projects and initiatives:

1.   Openly license and share, under the broadest possible license, any open educational resources developed or adapted using the grant;
2.   Post new or adapted open educational resources to an open repository in editable file formats or with source code; and
3.   Comply with the federal "Americans with Disabilities Act of 1990," 42 U.S.C. sec. 12101 et seq., as amended, to enable persons with disabilities to access the open educational resources developed or adapted using the grant.

The most common license that grantees have selected is the Creative Commons Attribution Non-Commercial License / CC BY-NC, which permits the right for others to retain a copy, re-use, revise, remix, and share OER as long as the author is attributed and the use is non-commercial[17].

OER Grant Program

Summary

The 2018 legislation allocated $500,000 for the first-year grant cycle for public institutions of higher education in Colorado to initiate and expand the use of OER. Subsequent years were allocated approximately $1 million from cycle two in 2019 through the eight grant cycle to be awarded in 2025. The OER Council selected 25 grants in the fourth cycle in January 2023 to accelerate and continue to enhance the innovative landscape of higher education through Open Education work. This report primarily focuses on the fifth grant cycle where proposals were due in December 2022, grant

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[16] Concerning the Use of Open Educational Resources at Institutions of Higher Education, and, In Connection Therewith, Making an Appropriation: https://leg.colorado.gov/bills/sb21-215
[17] Creative Commons, The CC License Options: https://creativecommons.org/share-your-work/cclicenses/

recommendations were approved by the Colorado Commission for Higher Education in March 2023, and the grants were executed from May 2023 to June 2024.

Structure of Request for Proposals

The OER Council in conjunction with CDHE staff outlined the structure of the request for proposals (RFP) and timeline for the fifth grant cycle that mirrored the first four cycles. The Council set broad parameters in the RFP to encourage proposals and expand the reach of the program.

Grant Types
1. **Institutional grants** range from $10,001-$75,000 to support deploying and sustaining existing institution-wide OER initiatives, including incentive funding for faculty and staff.
2. **Individual and small group grants** range from $250-$10,000 that would support the review, creation, adaptation, or adoption of OER by an individual faculty/staff member or a small group such as a specific institutional department, especially at institutions without an OER initiative or associated incentive funding.
3. **Collaborative or partnership grants** range from $10,000-$75,000 to support the creation, adaption, or adoption of OER across multiple institutions, including private institutions or K-12 partners, with the lead applicant being a public institution of higher education.

The RFP for grant cycle 5 maintained the same scope and requirements as the first four cycles, but the RFP document was reformatted and expanded to include a detailed criteria list that corresponded to the rubric. A rubric had been established in prior grant reviews but was shared publicly for the first time as part of the cycle five RFP to aid applicants with drafting more successful proposals. Additionally, for the first time templates for the grant narrative and budget were released with the RFP with each section of the narrative template corresponding to the rubric. The changes to the templates aided the OER Council in reviewing the proposals and provided confidence to applicants that they were addressing all requirements of the proposal. The templates were successful and will be implemented in future grant cycles. As in previous years, the OER Council hosted several webinars and the CDHE director of open education held several open office hours to assist potential grantees with the application process.

Cohort Five Grantees

At the close of the RFP in December 2022, there were 27 submissions for the grant, totaling more than $1.1 million in proposed projects. The OER Council selected 25 proposals to award funding; 21 institutional grants, 3 small group/individual grants, and 1 collaborative grant. The collaborative grant has existed since the inception of the grant program, but cycle five was the first time the grant category was awarded. The collaborative grant, "Graduate Student and Postdoc Professional Development

Trainings: GradCO Open Program for Advanced Workforce Readiness," is between five institutions: Colorado School of Mines, Colorado State University, University of Colorado Anschutz, University of Colorado Boulder, University of Northern Colorado. GradCO is an exciting development for the grant program because it illustrates interest in inter-institutional collaboration to advance OER across the state and open education's impact beyond cost savings. All 11 grants awarded two years of funding in cycle four made satisfactory progress and were awarded their second year of funding in cycle five. The performance period for the five cohorts of OER grants was from May 2023 through June 2024.

FIGURE 3: OER Grant Cohort 5 Investment and Cost Savings for Institutional Grants 2023-2024
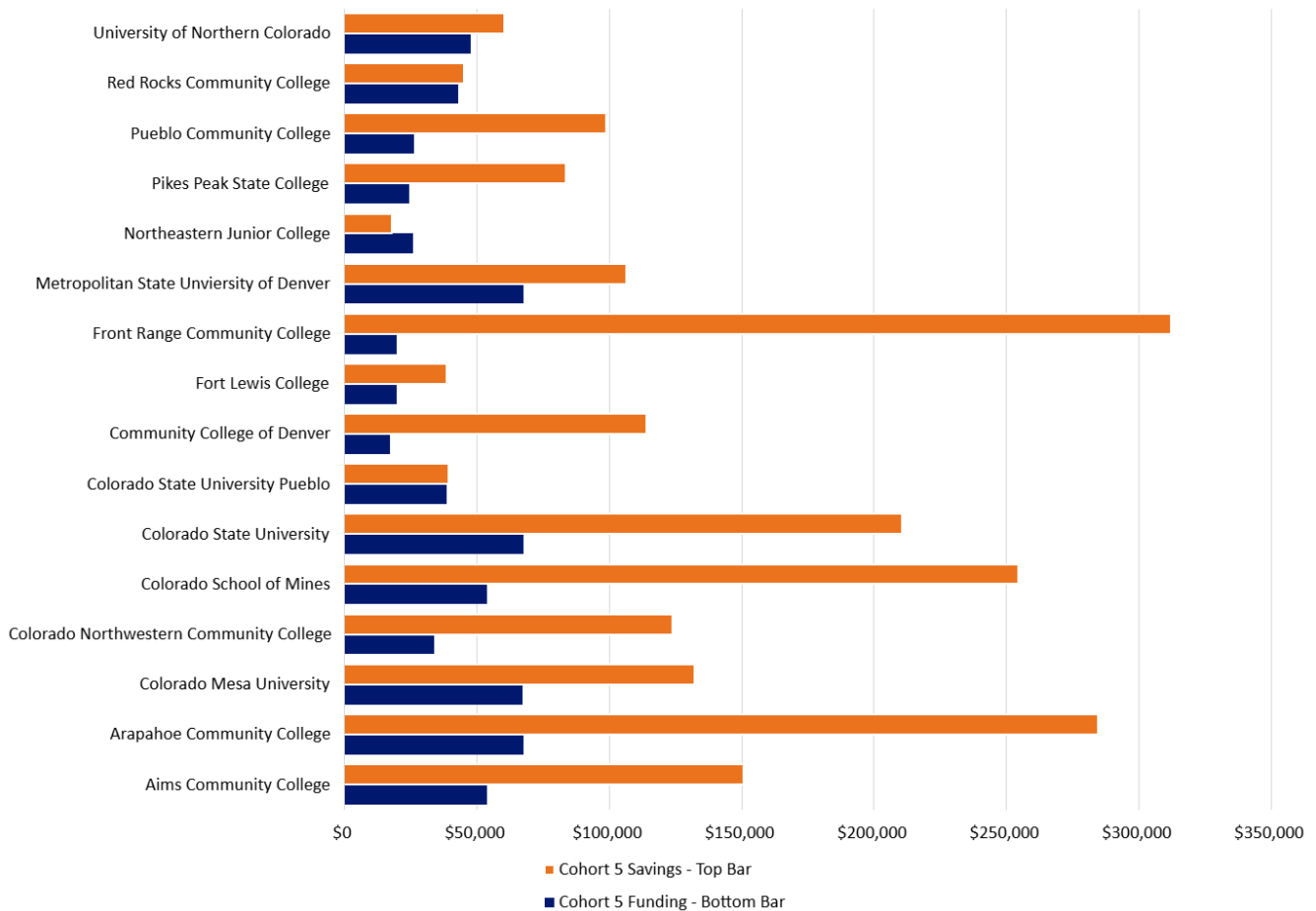
Institution	Cohort 5 Funding	Cohort 5 Savings
University of Northern Colorado	$47,897	$60,432
Red Rocks Community College	$43,133	$45,208
Pueblo Community College	$26,500	$99,180
Pikes Peak State College	$24,500	$83,855
Northeastern Junior College	$25,900	$18,250

Metropolitan State University of Denver	$67,748	$106,690
Front Range Community College	$20,000	$312,340
Fort Lewis College	$20,000	$38,939
Community College of Denver	$17,420	$114,292
Colorado State University Pueblo	$38,727	$39,670
Colorado State University	$67,748	$210,928
Colorado School of Mines	$54,000	$254,687
Colorado Northwestern Community College	$34,000	$123,936
Colorado Mesa University	$67,316	$132,380
Arapahoe Community College	$67,748	$284,913
Aims Community College	$53,830	$150,854

Preliminary projections of total student cost savings from cohort five show a full return on the State's dollars from the combined cost savings across all 25 grant projects – with 16 of the 25 grants exceeding an individual full return on investment from their grant-funded amounts. Small, individual, and collaborative grants are not included in the chart below. For example, Red Rocks Community College reported an equal return on investment with $43,133 funded for grant work completed in the 2023-2024 academic year and reported a cost savings of $45,208 by Fall 2024; Pikes Peak State College received $24,500 for grant work completed in the 2023-2024 academic year and reported a cost savings of $83,855 by Fall 2024; and Arapahoe Community College received $67,748 for grant work completed in the 2023-2024 academic year and reported a cost savings of $284,913 by Fall 2024. The other 9 grant projects are grants that focus on educational trainings or the development of ancillary open education materials that do not have direct cost savings, OER developed for courses that did not previously exist and therefore do not have a prior cost for students, were conducted at a school with an equitable access program, or will have increased implementation of OER beyond Fall 2024 that will increase their grant's return on investment. Converting high enrollment courses that have previously assigned textbooks that are above $100 results in the most significant cost savings, but many open education projects will have a large impact that will be demonstrated over time rather than the first semester after the completion of the grant performance period.

This report was previously due on October 1 but was moved to a due date of December 1 beginning in 2024. Final reports for each grant cycle have previously been due August 15 each year, which results in underreporting the impact of OER implemented following the conclusion of the grant period. For example, OER that was developed during the grant period, but would not be implemented until Fall 2024 or Spring 2025 - the first time the course was taught after completion of the grant - would report $0 cost savings for the conversion. Final reports for cycle 5 were extended to September 27 with the hope of capturing more meaningful data regarding Fall 2024 enrollment cost savings. However, based

on grantee feedback, a longer reporting timeline is needed to better capture the full implementation of OER resulting from grant work.

Changes to the Request for Proposals in Grant Cycle 6

The RFP was revised for cycle six with the greatest changes to the grant program since its inception. The first five years of the OER grant program followed a model of institutional, collaborative, and small group/individual proposals. This approach worked well for the grant program and allowed for a wider scope to aid in institutions across the state embracing OER. The OER Council and CDHE significantly revised the awards for the cycle six RFP to increase momentum and the number of z-degree pathways that provide students the ability to complete their degree with zero textbook cost offered at Colorado institutions.

In cycle six, the Colorado OER Grant Program established seven grant categories with a total allocation of $1,000,000. The OER grant review prioritized the funding of z-degrees and collaborative grants by explicitly stating in the 2023 RFP the aim to award at least $500,000 in grant funding to z-degree and collaborative proposals. The following were the seven grant categories for the sixth cycle of OER grant funding:

> **1A: Complete General Education/AA + Major Z-degree**: Grants that will undertake a full zero textbook cost degree (z-degree), providing OER course options regularly from start to finish in general education and major(s) so a student can complete their degree with zero textbook cost.

> **1B: Major Coursework Z-degree**: Grants that will convert all required coursework in a major or certificate to OER whether through adoption, adaptation, or creation of OER. Students would be able to complete their major required coursework without textbook cost.

> **2A: Collaborative:** Grants awarded to two or more institutions (K-12 and private institutions eligible with a lead applicant that is a public institution of higher education) to adopt, adapt, and create OER for multiple courses.

> **2B: Collaborative z-degree:** Grants awarded to two or more institutions to adopt, adapt, and create OER with the express goal of establishing z-degrees at each participating institution.

> **3: Small group:** Grants run by a small group of committed faculty at a single institution to adopt, adapt, or create OER for multiple courses, but not undertake a z-degree initiative.

> **4: General Incentive Grant:** Grants that will fund an incentive or stipend grant program to be distributed by the institution to provide stipends to adopt, adapt, or create OER for multiple courses at the institution.

5: Individual Course: Grants that will adopt, adapt, or create OER for a single course.

Although institutions previously proposed and completed z-degree initiatives under the previous institutional grant type, the OER Council and CDHE believed implementing these changes would increase proposals focused on Z-degrees and result in greater affordability for Colorado students to pursue and complete their higher education programs. In the first five years of the grant program, four major coursework z-degrees were undertaken at Colorado State University Pueblo, Colorado School of Mines, and University of Colorado Denver. The 2023 RFP resulted in seven new z-degrees being proposed by institutions that previously had not worked on a z-degree under the grant program, out of the 10 z-degree proposals received.

An additional change was CDHE and the OER Council determining that beginning in the sixth grant cycle institutions with automatic textbook billing programs are not eligible for general incentive funds. General incentive funds are colloquially referred to as "mini-grants" that sporadically support OER development at an institution and typically do not target a specific degree. Automatic textbook billing programs, frequently labeled as "inclusive access" and "equitable access" programs are textbook sales models that add the cost of digital course content automatically into students' tuition and fees[18]. Automatic billing programs limit students' ability to seek out less expensive textbooks, increase the consolidation of publisher control, discourage changes in the textbook market that would help drive down the cost of materials, and may lead some faculty to be less motivated to use open educational resources[19]. In early 2024, the U.S. Department of Education proposed revising the rule to make almost all automatic billing programs opt-in rather than opt-out[20].

In "equitable access" programs students pay a flat-fee amount per credit hour or semester. The fees are equal for all students no matter what courses or degree they are enrolled in, and students can only opt out of the program for their entire course load rather than for specific courses. For example, a student enrolled in two OER courses at an institution with an "equitable access" program will still pay the automatic textbook billing fee unless they opt out of all their courses. Since "equitable access" programs are all-or-nothing, the programs can prevent cost savings from OER being realized. Presently, the University of Colorado Boulder and the University of Colorado Colorado Springs have equitable access programs. These programs began in 2023. UCCS Textbook Affordability and Access Program[21] initially charged $22 per credit hour in 2023, but the cost rose to $25 per credit hour in 2024. CU Book

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[18] InclusiveAccess.org: https://www.inclusiveaccess.org/
[19] PIRG Automatic Textbook Billing: https://pirg.org/edfund/resources/automatic-textbook-billing-2/
[20] SPARC 2024 U.S. Department of Education Negotiated Rulemaking: https://sparcopen.org/our-work/2024-u-s-department-of-education-negotiated-rulemaking/
[21] UCCS Textbook Affordability and Access Program: https://www.uccs.edu/taap

Access[22] is $269 per semester as of Fall 2024. Institutions, faculty, and students have the right to select the materials best suited for their educational contexts. To ensure accurate cost savings data is being reported for the state's investment, cost savings for courses at equitable access institutions will only be reported if data is provided for the number of students who opted out of the program. Cost savings of $109,857 from University of Colorado Boulder and University of Colorado Colorado Springs cohort five grants were not included in the cost savings estimates within this report as a result of the equitable access programs. Opt out data for OER courses was not provided. Although students do not benefit from direct cost savings from OER at institutions with equitable access programs, students still benefit from open pedagogy in their classrooms.

Institutions with automatic textbook billing programs are eligible for all other grant categories, which require the identification of the courses that will be converted to OER within the grant proposal. CDHE and the OER Council particularly encourage institutions with automatic textbook billing programs to submit proposals for z-degrees, as z-degrees are the most efficient way for students to be able to confidently opt out of the automatic textbook billing programs and realize the full cost savings of OER.

Cohort Six Grantees

At the close of the RFP in December 2022, there were 31 submissions for the grant, totaling more than $1.1 million in proposed projects. The OER Council selected 26 proposals to award funding: 10 z-degree grants, 9 general incentive fund grants, 3 collaborative grants, 2 individual course grants, 1 small group grant, and 1 remaining two-year institution grant that began in cycle five. The sixth cycle of grants reflects an overhaul of the request for proposals that prioritized z-degree and collaborative proposals. The 10 z-degree proposals feature six projects that will convert upper-level major or graduate courses to OER that include theater and business, three projects that will address both lower and upper-level courses to transform entire undergraduate degrees to zero textbook cost from start to finish, and one collaborative project that will provide a zero textbook cost pathway for nursing students at Fort Lewis College to the University of Colorado Anschutz. The sixth cycle also marked the first time multiple collaborative proposals were received in a single grant cycle. The sixth cohort of the OER grants runs from May 2024 through June 2025.

Institutional Trends in Cohort 5

Student Success Metrics

There has not been an in-depth study or analysis on OER courses versus non-OER courses across Colorado. However, one multi-year study was completed at the University of Northern Colorado that

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[22] CU Book Access Program: https://www.cubookstore.com/bookaccess

reported a positive impact of OER on course completion and passing rates when compared to non-OER class sections[23]:

- First-generation students had a 9% higher rate of completing the course and a 5% higher rate of passing the course;
- Pell grant-eligible students had an 8% higher rate of completing the course and a 6% higher rate of passing the course;
- Underrepresented students of color students had a 10% higher rate of completing the course and a 5% higher rate of passing the course;
- Overall students had a 10% higher rate of completing the course and a 7% higher rate of passing the course when OER was utilized as the primary course material versus a non-OER class section.

Metropolitan State University of Denver reported that during the 2023-2024 academic year OER courses supported by cycle 5 grant funding had a 6.6% higher pass rate than non-OER comparators. Colorado Northwestern Community College reported an increase in student success and completion rates between their second-year and fourth-year grants, and Fort Lewis College's average pass rate for cohort 5 grant-funded courses was 85.5% in Fall 2023 compared to the last time the courses were taught without OER in Fall 2022 courses with a pass rate of 81.6%. However, Colorado School of Mines shared that there appears to be no change in completion rates, pass rates, and student retention between low-or-no cost materials and traditional textbooks; and Red Rocks Community College reported higher success rates in OER courses in 2022 and 2023, but lower success rates in 2024 data. Additionally, the University of Colorado, Colorado Springs conducts pre and post-course surveys when OER is implemented to measure student awareness of, experience with, and the use of OER. The institution reported that 87% of students shared that OER increased their understanding of the content, 83% of students said they were satisfied with the OER materials, and stated that OER implementation has led to a positive increase in retention, persistence, and assessment of learning outcomes.

Arapahoe Community College converted 25 courses under the cohort 5 grant. Below is the pass rate comparison for five of their courses that illustrates the inconsistency seen in single-year reports:

- ENP 2005 Marketing for the Entrepreneur had an 81.82% pass rate versus the 69.23% non-OER comparison course (spring semester),
- ECO 2001 Principles of Macroeconomics had a 77.95% pass rate compared to the 88.54% pass rate for the non-OER comparison course (spring semester);
- COM 2300 Intercultural Community had a comparable pass rate of 83.10% in the OER course and 85.71% in the non-OER section (Spring semester);

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[23] Open Educational Resources (OER) Efficacy and Experiences: A Mixed Methods Study, Jennifer Mayer: https://digscholarship.unco.edu/libfacpub/161/

- MAT 1340 College Algebra had a 66.43% pass rate compared to the 75.47% pass rate for the non-OER comparison course (fall semester) and a 72.15% pass rate compared to the 70.54% pass rate for the non-OER comparison course (spring semester);
- and SOC 1001 Introduction to Sociology had an 82.35% pass rate compared to the 100% pass rate for the non-OER comparison course (fall semester) and a 78.95% pass rate compared to the 58.33% pass rate for the non-OER comparison course (spring semester).

The majority of most grantee institutions report difficulty in gathering the required data, not having a non-OER course offered for a fair comparison, and understaffed institutional research offices to assist in data collection and analysis. Many final grant reports are a snapshot of one or two semesters of OER implementation with enrollments of under 100 students per course. Frequently grantee institutions do report that faculty share positive comments from students and anecdotal data regarding student satisfaction.

It is difficult to generalize the impact of OER on completion, pass, and retention rates without a longitudinal study. There are many reasons a student may succeed in a course that extends beyond course materials, such as the instructor's teaching, stable housing, food access, or experiencing a global pandemic. It is most reliable to compare courses that are offered in the same semester, sections from the same instructor one semester or year apart, or student success rates over multiple academic years. Additionally, there is an emerging trend in grants to launch new courses or degree programs as OER, which results in having no comparable success rate data for a prior non-OER course. CDHE and the OER council are presently collaborating with institutions for a retrospective study that is anticipated to better illustrate such trends now that there are multiple years of implementation to see patterns in student success. The findings from the retrospective study will be shared in the 2025 report.

An in-depth study on OER courses versus non-OER courses across Colorado is planned after required course marking is implemented beginning in Fall 2025, pending Departmental capacity. Additionally, enrollment and completion rates for z-degrees compared to other programs are not included in this report as only two major coursework z-degrees were implemented prior to year five of the grant program. The z-degree bachelor of arts in Spanish at Colorado State University Pueblo has been available to students for two academic years, and the z-degree master of science in mechanical engineering at Colorado State University has been available for one academic year. Trends in enrollment and completion rates will be reported in future reports when a full four or two year cycle of students has participated in the respective z-degree.

OER Growth in Institutional Course Offerings

Metropolitan State University of Denver reported 77% of no-cost courses fill more completely compared to 68% of all other courses; guaranteed transfer pathway courses grew from 8% to 90% OER

between 2021 and 2023 at Colorado Northwestern Community College; and Red Rocks Community College noted an increase from 518 OER sections in 2022 to 646 OER sections in 2023 with an overall percentage increase of 14.78% to 19.13% of total institutional offerings from 2022 to 2023.

Figure 4 lists all cohort 5 institutional grantee responses for the number of OER courses (or sections if denoted with *) and the percentage of those OER courses make up of the total institutional course offerings:

FIGURE 4: OER Course Offerings by Institution

Institution	Total OER courses or sections*	Percentage of total courses
Aims Community College	86	38%
Arapahoe Community College	554*	23.40%
Colorado Mesa University	288*	Not reported
Colorado Northwestern Community College	75	90%
Colorado School of Mines	95	10%
Colorado State University	151	<1%
Colorado State University Pueblo	117	1%
Community College of Denver	Not reported	Not reported
Fort Lewis College	51	5%
Front Range Community College	22	1%
Metropolitan State University of Denver	888*	11.50%
Northeastern Junior College	182*	15%
Pikes Peak State College	81	4%
Pueblo Community College	42	Not reported
Red Rocks Community College	618*	17%
University of Colorado Anschutz	Not reported	Not reported
University of Colorado Boulder	15	0.03%
University of Colorado Denver	144*	Not reported
University of Colorado Colorado Springs	280*	Not reported
University of Northern Colorado	148	11%
Western Colorado University	11	Not reported

As stated in the prior section, many grantee institutions report difficulty in gathering the required data and understaffed institutional research offices to assist in data collection and analysis. It is required that no later than Fall 2025 students are informed at the point of registration which courses and sections

use open educational resources or other low-cost materials. CDHE and the OER council anticipate institutional research offices will be able to provide more consistent, complete data after the course marking requirement is implemented.

From mini grants to z-degrees

Institutional grants formed the bulk of OER grant funding during the first five years of the program and have been colloquially referred to as "mini-grants" on campuses. Institutions received grant funding and then distributed stipends to adopt, adapt, or create in the form of smaller grants to faculty and instructors. An emerging trend is prior institutional mini-grant recipients growing into leadership roles in OER at their institution and developing z-degrees. Three z-degrees projects that were funded in cycle six were proposed by former institutional mini-grant recipients:

- At Red Rocks Community College, Kelly Jo Eldgredge published full OER course modules for Theatre Appreciation from mini-grant funding received as part of the institutional cohort 5 funding. Eldgredge is leading "Staging Success: A ZTC degree pathway for RRCC Theatre Studies" to develop a z-degree associate of arts in theater arts and associate of applied science in theater technology.
- Teresa Connolly, University of Colorado Anschutz, received mini-grant funding from the University of Colorado System institutional grant in cohort 3, successfully applied for an individual grant in cohort 4, and is presently co-leading the development of a collaborative z-degree in nursing in cohort 6 with Tyler Dunn of Fort Lewis College.
- Also at the University of Colorado, Anschutz is Maureen Stabio of the Modern Human Program, who received one of the first mini-grants in 2019[24], and under cohort 6 grant funding is now leading the development of the Colorado OER Anatomy Hub Modern, a collaborative grant between University of Colorado Colorado Springs, University of Colorado Boulder, University of Colorado Denver, Colorado College, Colorado State University, and Aurora Tech High School. This grant project is the first in the grant program's history to collaborate with a private higher education institution or a PK-12 institution.

These three examples illustrate the impact of all levels of OER grant funding and how the state's multi-year funding has enabled individuals, programs, and institutions to flourish in their OER development.

Cohort 5 Champions: Case Studies

"I am proud that my course is now so affordable. Numerous students expressed relief at not having to buy an expensive text. I am positive that this exercise, for so many reasons, made me a

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[24] University of Colorado Open Champions: https://www.cu.edu/open-cu

better teacher. In the first place, to redesign it as OER I did a backward design model from the State outcomes that helped me see what I needed to find OER materials for (as opposed to what I felt I could write up myself). I enjoyed writing the literature lectures and then using OER/online materials (from one major course and a few LibGuides) and then commenting and supplementing myself with my opinions. Overall, I feel my course is better organized and more interactive." - Red Rocks Community College grantee

Colorado State University Pueblo

Colorado State University Pueblo is the state's leader in z-degrees with Alegría Ribadeneira as the OER faculty lead and support from Scholarly Communications Librarian Victor Baeza. Colorado State University Pueblo successfully implemented a z-degree bachelor of arts in Spanish in 2023. In 2024, the institution expanded with a zero textbook cost Spanish for health professionals certificate and z-degree master of arts in social work. The CSU Pueblo OER[25] website features interviews with OER heroes from a variety of disciplines and shares created OER, including the Spanish z-degre[26] and master of social work OER[27]. The master of arts in social work featured 11 course redesigns around OER, completing a nearly two-and-a-half-year process.

An unexpected project from Colorado State University Pueblo came when a planned nursing OER project was unable to move forward during the grant period. True to the OER committee's long-standing innovative practices, they created a unique OER that leverages artificial intelligence by providing prompts to help students concentrate on the specific health field of their choice. *Vida Sana*[28] is an intermediate textbook that introduces students to Spanish for health professions. The OER features 12 chapters, each consisting of two readings and a series of AI-assisted activities.

Colorado School of Mines Accessibility Course for Education

Colorado School of Mines developed the Accessibility Course for Education[29] (ACE) with grant funding in a prior grant cycle, an initiative coordinated by Scholarly Communications Librarian Seth Vuletich. The course has continued to be used each semester to aid instructors in accommodating the diverse needs of their students while creating OER with 76 participants at Colorado School of Mines completing the course since 2021. Under cohort 5, Colorado School of Mines sought to increase the accessibility of the course for other users to benefit the wider OER community. ACE was always publicly accessible on Canvas Commons, but the proprietary nature of Canvas precludes widespread adoption. A graduate assisted under cohort 5 in migrating the content from the proprietary Canvas platform to PubPub, a

[25] CSU Pueblo OER: https://sites.google.com/view/csu-pueblo-oer/home
[26] CSU Pueblo World Languages: https://csupworldlanguages.org/
[27] CSU Pueblo master of social work OER resources: https://sites.google.com/view/msw-public-oer
[28] Visa Sana, CSU Pueblo World Languages: https://csupworldlanguages.org/vida-sana/
[29] Accessibility Course for Education: https://ace.pubpub.org/

community publishing resource, and OER Commons, a repository widely used for public dissemination of OER. Colorado School of Mines' work on ACE illustrates the ongoing need to maintain and update OER, and the long-term benefits that OER created for professional development can have on the Colorado OER community. The ACE Certificate will be promoted as part of the OER Council 2025 professional development series to increase the training of accessible course design across Colorado.

Metropolitan State University

Metropolitan State University of Denver is an established leader in Colorado open education with an annual cost savings of over $2 million and a duplicated headcount of 23,599 students who are enrolled in OER or zero textbook cost courses. Their OER program is led by chemistry faculty Emily Ragan. The work of the dedicated OER team at Metropolitan State University of Denver has resulted in a steady increase in the percentage of faculty who report being very aware of OER in their annual survey with 52% of respondents reporting being very aware of OER in 2024, up from 46% last year and 8% in 2018. Additionally, the percentage of faculty reporting that they are using OER has increased from 15% of those surveyed in Fall 2018 to 65% in Fall 2024.

Some highlights of the Metropolitan State University of Denver cohort 5 grant not already covered in this report, include:
- A five-member OER team participated in the Institute on OER from the American Association of Colleges and Universities, which provides a year-long, online engagement opportunity for teams from campuses or state systems seeking to actualize an ambitious strategy to broaden campus engagement. The Metropolitan State University of Denver team aims to take their OER initiative to the next level, utilizing knowledge gained from the Institute on OER to collect strong data to advocate for support of OER more robustly at the institution.
- Nhu Nguyen-Siedem, a physical education teacher in the school of education, developed four courses as a springboard for an eventual z-degree K-12 physical education teacher, illustrating another example of an individual grantee laying the foundation for a future z-degree.
- Carolyn McGary, an adjunct in the department of engineering and engineering technology, developed the first construction management open textbook through institutional grant funds and published *Introduction to Construction Project Management* on the Colorado Pressbooks Network[30].

Student engagement in OER initiatives

Metropolitan State University of Denver, University of Northern Colorado, and Colorado School of Mines funded temporary student employees through the grant program to assist on-campus OER initiatives. OER PR interns at Metropolitan State University of Denver were Jake Smith in Fall 2023 and

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[30] Introduction to Construction Project Management: https://colorado.pressbooks.pub/introconstructionmanagement/

Abrianna Mangiamele in Spring 2024. The OER PR interns received mentorship from staff, developed plans for increasing OER awareness on campus, built inroads with student government, and were co-presenters on OER at campus and statewide events. Affordable & Open Educational Resources (AOER) at University of Northern Colorado hired a student employee, Ethan Roth, an undergraduate psychology major, for an average of 20 hours per week during the fall and spring semesters. Roth served on the AOER committee, conducted outreach to faculty on OER, presented to the student government association, moderated professional development panels, and coordinated interviews with OER advocates.

At the Colorado School of Mines, the OER program has a unique collaboration with the Writing Center that established the OER-based Online Technical Communication Center. Graduate students are hired to be STEM Communication Designers that create OER, primarily for high-impact core classes, and develop additional OER based on faculty requests and student need.

> *"Being a Graduate STEM Communication Designer was one of the most rewarding experiences I had as a student at Mines. As a student, we are often given assignments that not only challenge us but also encourage us to use skills that may otherwise be neglected. In such instances, having access to resources is crucial. Personally, I always refer to our school catalog for such resources. Discovering Open Educational Resources (OERs) has significantly enhanced my writing abilities, particularly in the realm of scientific writing, which differs from everyday writing. The OERs have served as a valuable and consistent source that I not only utilize for myself but also recommend to others. When the opportunity arose to contribute to the OERs catalog, I found the prospect exciting as it allowed me to give back to the community that had supported me immensely." -MJ Ytterberg master's of science in computer science student*

(Left) Megan Rector, Faculty Chair of the Center for Innovation in Teaching and Learning Communication Faculty, and Lisa Chestnut, Associate Dean of the Library and Learning Commons, stand

at the table educating attendees at the Arapahoe Community College 2024 Open Education Week "OERnival" event. **(Right)** Lisa Chestnut weighs the backpack of an Arapahoe Community Community student as a symbol of the weight of textbook costs on students.

Additionally, International Open Education Week is celebrated in March every year and is often used to engage students in OER awareness. Arapahoe Community College put on an "OERnival" to celebrate OER in March 2024! Over 200 students attended the ongoing event that featured information tables on OER, multiple staff members answering questions on OER, a prize wheel, popcorn, and churros. The OERnival weighed student backpacks as a symbol of the weight of textbook costs on students with the heaviest backpack weighing in at 26.2 pounds. Arapahoe Community College instructors, librarians, administrators, and instructional designers use OER to lighten students' loads.

2024 Colorado OER Conference

The 2024 Colorado OER Conference was held on May 17 at the Auraria Campus in Denver. The theme of the conference was "Open Pedagogy: From Concept to Classroom." The conference featured 21 sessions of presentations, workshops, and roundtables under four themed tracks (beginner, intermediate, STEM, and strategy). Nearly 200 Colorado faculty, librarians, instructional designers, students, administrators, and other OER advocates registered for the conference. Interest in the conference was greater than in prior years, indicating a growing interest in OER, and registration was closed early due to interest being greater than the venue size. A larger event space has been selected for the 2025 Colorado OER Conference to be held on May 30 at the University of Northern Colorado in Greeley.

(Left) Conference attendees watch Melanie Battista's presentation during the session "Exploring AI Chatbots in Education: From Understanding to Implementation." **(Right)** presenter Clint Carlson helps student attendee Sam Collier with an interactive lesson at the workshop at the session, "Augmented Reality in Education: Building endless, interactive, OER teaching experiences across any content field."

A leadership pre-conference for advocacy training was held on May 16. Hailey Babb and Aishah Abdullah of SPARC led a full-day OER Advocacy training that addressed identifying goals and stakeholders, developing strategies for outreach, advocating for OER amidst automatic textbook billing programs, and targeting your pitch to faculty or administrators. The skills developed during the pre-conference training will be built upon in a planned 2025 learning community. Additionally, CDHE and the OER council awarded nine travel scholarships that covered hotels and/or mileage for attendees who lived a significant distance from Denver to make the conference as accessible as possible.

In a feedback survey, 93% of respondents were satisfied with the conference with many commenting that the conference exceeded their expectations. One respondent noted there wasn't enough introduction to OER material, which will be addressed in online professional development in spring 2025 and morning sessions at the 2025 Colorado OER Conference. Respondents shared their favorite sessions were the University of Northern Colorado panel that featured student Ethan Roth; "Lessons from an OER PR Internship to Strengthen your OER Initiative" presented by Dr. Emily Ragan and student Abrianna Mangiamele of Metropolitan State University of Denver; and University of Northern Colorado's Oscar Levin discussing the use of the open source tool PreTeXt and how OER is artisanal, small-batch learning materials. Additionally, one respondent provided the feedback that the OER conference and community are "giving my professional life a flair I never expected. I feel validated and excited to engage with my students and colleagues through OER initiatives."

(Left) Conference attendees listen to the panel "Exploring Open Education Advocacy: Stakeholder Strategies to Build a Campus Culture of 'Open'" from presenters Molly Jameson, Nancy Henke, and student Ethan Roth of University Northern Colorado. **(Right)** members of the Colorado OER Council in a group photo holding gold "OER" balloons at the 2024 Colorado OER Conference. Back row: Rebecca Blickhahn, Sherry Jones, Mitch Cota, Jon Dhyr, Nicholas Swails, Katherine Brown, Sam Collier, and front row: Jaimie Henthorn, Chealsye Bowley, Jennifer Mayer, Leslie Reynolds, Jacque Tomrdle, and Medora Huseby. Conference photos by Benjamin Hale[31]

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[31] Benjamin Hale, 2024 Colorado OER Conference: https://www.prettygoodpics.com/Other/2024-OER-Conference/

Upcoming OER Council Initiatives

OER work in Colorado has gained a national reputation due to our strength in funding support and state-level leadership. In last year's report, the OER Council recommended expanding funding and ancillary materials, addressing automatic textbook billing programs, and cultivating collaboration between institutions and K-12. These priorities remain for the Department and OER Council.

Additionally, CDHE and the OER council achieved three impactful initiatives outlined in the 2023 report:

- The Colorado Pressbooks Network was launched in Fall 2023 to provide the opportunity for Colorado institutions to design and publish up to 45 OER books[32]. The state-wide network joins Colorado Community College System Open Textbooks[33], Colorado State University Pueblo[34], and Fort Lewis College Digital Press[35] on Pressbooks, the largest OER-specific publishing platform.
- The Colorado OER Hub for Higher Education soft-launched in 2024 on the OER Commons platform as a repository to store and showcase OER created in Colorado[36]. Work will continue into 2025 with grantees and the wider Colorado OER community sharing their materials to fully populate the hub.
- Professional development for the Colorado OER community was consistently supported by the Department and Council with monthly webinars and open education-related training throughout 2023-2024. However, the addition of disciplinary community building opportunities was not achieved and remains a goal for 2024-2025 with the ability of disciplinary groups to form groups on the Colorado OER Hub.

The OER grant program will sunset after its eighth grant cycle, the OER Council will be repealed, and the director of open education position will end in 2026. The council is strategically planning how to provide the Colorado OER community with a strong foundation beyond 2026. The OER council has identified engaging rural institutions with OER, skill building through professional development, and promoting student voices in OER.

Engaging rural institutions with OER

Colorado Northwestern Community College, Fort Lewis College, and Western Colorado University are the leading rural institutions of higher education in the state for OER and are frequent participants in the grant program. However, Colorado Northwestern Community College is without a librarian or instructional designer and its success is owed to devoted faculty, Fort Lewis College's OER impact

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[32] Colorado Pressbooks Network Catalog: https://colorado.pressbooks.pub/catalog/
[33] CCCS Open Textbooks: https://pressbooks.ccconline.org/
[34] CSU Pueblo Open Education: https://pressbooks.packsites.net/
[35] Fort Lewis Digital Press: https://pressbooks.fortlewis.edu/
[36] Colorado OER Higher Education Hub: https://oercommons.org/hubs/coloradohighered

primarily rests on one very dedicated librarian, and Western Colorado University has concentrated interest in OER but reports challenges in staffing. Northeastern Junior College has run an impactful OER grant program, including funded proposals in four out of six grant cycles, but has reported the strain of converting courses to OER while juggling multiple hats in faculty duties.

Many rural institutions have infrequently participated in the grant program, which is believed to be due to staff capacity. Lamar Community College has never received an OER grant, Morgan Community College received one grant in year two, Otero College received one grant in year three, Trinidad State College received grants in the first three years of the program, Colorado Mountain College has not received a grant since the fourth year, and Pueblo Community College has received four grants but has experienced significant staff turnover, and Adams State University has only applied in two out of seven grant cycles. Rural institutions frequently have limited resources, but they have unlimited passion for their students. OER is a gateway for innovation in education, and through engagement with rural institutions, the OER council will determine what support is needed to position rural institutions for successful OER implementation.

In the coming year, the OER council wants to make a concerted effort to reach out to all rural public institutions in Colorado, provide targeted professional development and OER training, and create a network of support between institutions. CDHE and the OER council are exploring a rural subcommittee, similar to existing OER council subcommittees, that will include council members and non-council members from rural institutions to advise on the support needed for rural institutions in Colorado. It is anticipated that trainings will be held online, the support provided to attend the statewide OER Conference to be held in Greeley in 2025, and in-person trainings held at rural institutions.

Skillbuilding through professional development

Over the years, CDHE and the OER council have provided professional development through the Colorado OER Conference, sponsoring Creative Commons certificate trainings, hosting in-person ambassador trainings by the Open Education Network, and monthly webinars on topics related to OER. The OER council reporting & advocacy and professional development subcommittees have been strategically planning for impactful professional development for the whole OER community.

In 2025, in addition to continuing the annual conference as a source of professional development, CDHE and the OER Council will:
- establish a tiered badge system that will recognize ongoing participation that builds specific skills through OER webinars and trainings offered in Colorado;
- launch an advocacy learning community and certificate to build upon skills introduced at the 2024 Colorado OER Conference pre-conference;

- host accessibility training series; and
- create OER basics certificate trainings lead by Colorado educators, librarians, and instructional designers.

Additionally, the international 2025 Open Educational Conference will be hosted in Denver on October 28-30. The OER council has a goal to support at least one attendee from every public institution of higher education, especially institutions that are not recent grantees, to attend the transformative community conference.

Promoting student voices in OER

Students are a critical voice in the open education movement. The Colorado OER community has demonstrated through initiatives, such as the OER PR intern at Metropolitan State University of Denver and the Affordable & Open Educational Resource student employee at University of Northern Colorado; Arapahoe Community College forming a student OER committee in 2024-2025; and graduate students serving as STEM Communication Designers at Colorado School of Mines. A student serves on the Colorado OER Council, Sam Collier of University of Colorado Boulder 2022-2024, and presently Rebecca Blickhahn of Colorado State University Pueblo.

In 2024-2025, the OER Council will seek new avenues to promote student voices in OER through student governments, suggesting institutional OER committees add a student representative, OER trainings designed for students, student surveys, and an OER fellows program.

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11. See the dedicated webpage at: https://cdhe.colorado.gov/educators/administration/institutional-groups/open-educational-resources-in-colorado
12. Report to the Joint Budget Committee and The Education Committees of the General Assembly Open Educational Resources in Colorado November 2017: https://highered.colorado.gov/Publications/Reports/legislative/OER/OER_Nov2017.pdf
13. Higher Education Open Educational Resources: https://leg.colorado.gov/bills/hb18-1331
14. Inclusive Access: https://inclusiveaccess.org/

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FIGURE 1: Compounded Savings from Grant Funded OER Cohort Cycles 1-5
Source - Colorado Department of Higher Education

FIGURE 2: Growth in Annual OER Course Enrollment Cohorts 1-5
Source – Colorado Department of Higher Education

FIGURE 3: The invested amount into cohort 5 grants and the total reported student cost savings.
Source – Colorado Department of Higher Education

FIGURE 4: Reported number of courses (or sections if denoted with *) and percentages of those courses/sections that make up the total courses offered at Cohort 5 institutional grantees.
Source – Colorado Department of Higher Education

FIGURE 4: Photo of Arapahoe Community College's "OERnival" 2024 Open Education Week event
Source – Arapahoe Community College

FIGURE 5: Photo of Lise   Chestnut weighing student backpacks at the Arapahoe Community College "OERnival" 2024 Open Education Week event
Source – Arapahoe Community College

FIGURE 6: Photo of 2024 Colorado OER Conference session "Exploring AI Chatbots in Education: From Understanding to Implementation presented by Melanie Battista.
Source – Benjamin Hale

FIGURE 8: Presenter Clint Carlson assisting conference attendee during the 2024 Colorado OER Conference workshop "Augmented Reality in Education: Building endless, interactive, OER teaching experiences across any content field."
Source – Benjamin Hale

FIGURE 9: Photo of conference attendees listening to the panel "Exploring Open Education Advocacy: Stakeholder Strategies to Build a Campus Culture of 'Open'" at the 2024 Colorado OER Conference.
Source – Benjamin Hale

FIGURE 10: Members of the Colorado OER Council at the 2024 Colorado OER Conference.
Source – Benjamin Hale

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