Conflicted Digital Adoption:

Educational Resources in U.S. K-12 Education, 2024

Julia E. Seaman and Jeff Seaman

Bay View Analytics®

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Julia E. Seaman, Ph.D.
Research Director, Bay View Analytics
Jeff Seaman, Ph.D.
Director, Bay View Analytics

2024

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Julia E. Seaman
Jeff Seaman
Bay View Analytics
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EXECUTIVE SUMMARY

This is the fifth report in a series tracking curricula discovery, selection, and adoption processes in U.S. K-12 education. The series has followed the awareness and use of OER materials in classrooms through the global COVID-19 pandemic and its sudden onset of remote learning, and the post-pandemic return to in-person instruction in the classroom.

This survey was conducted in April 2024, with a total of 1,377 teachers and 206 administrators participating. The respondents come from 48 states and the District of Columbia.

The key takeaways from this year's survey are:
- One third of K-12 teachers are aware of open educational resources (OER), the highest level since we started measuring in 2018-19. A similar percentage of teachers report using OER materials this year as either required or supplemental materials.
- The proportion of teachers reporting any type of instruction that wasn't in-person has remained constant in the post-pandemic era, at around 10%.
- Most teachers report that they use a required textbook, and these textbooks are offered to students in both print and digital formats. Digital-only offerings are more common in higher grades, while print-only offerings are more common in lower grades. However, more than 50% of teachers across all grades offer textbooks in both formats.
- Opinions on print vs. digital materials remain conflicted as the use of digital materials grows. More than half of teachers believe students learn better from print, but an even greater number believe digital materials offer greater flexibility for students.

STUDY RESULTS
In-Person and Remote Teaching

> **9 in 10 teachers report teaching all classes fully in-person, a proportion that has been stable for the post-pandemic K-12 classroom.**

"Anything that is new can benefit the students if handled properly. We often encourage students to not have phones... but they can do so much today in a classroom with their phones... We have to realize that these kids will run this world in the future. Stunting their growth will not help the ongoing processes of learning."
- Social Science, Grades Pre-K - 3

"Students love learning through multiple ways material can be presented. If a teacher is creative, they should be able to develop materials to meet the needs of all students in a way that learning thrives!"
- English Language Arts, Grades Pre-K - 3

2023-24 K-12 Teachers: Teaching Modality

- 11% Some remote, hybrid or not in-person instruction
- 89% All instruction in-person
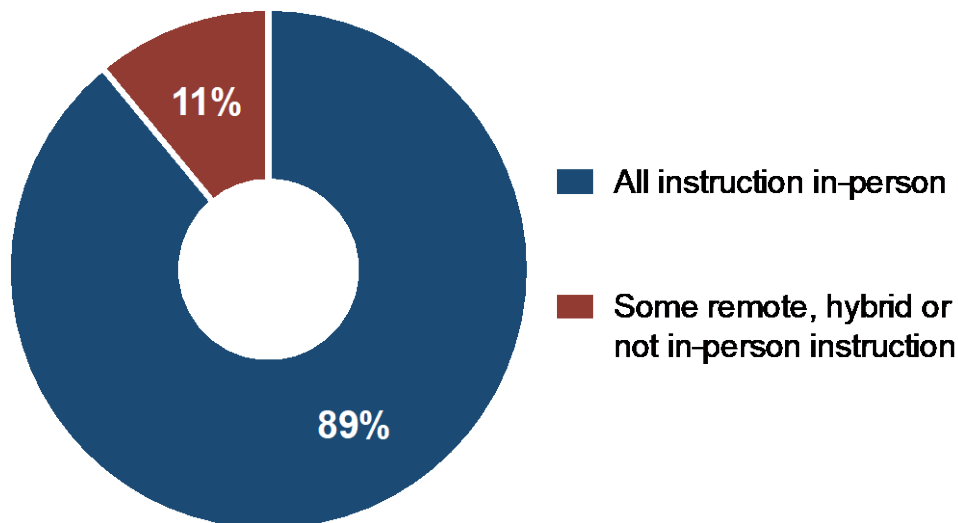
For the 2023-24 school year, 9 in 10 teachers reported that all of their instruction was fully in-person. Eleven percent of our respondents offered some type of online instruction during the year. The format of online instruction varied across the respondents, from fully remote to a hybrid for whole or just part of the school year, and for all or just one of their classes. Teachers across different grade levels reported almost identical rates for their format of instruction. There was no pattern related to grade level.

K-12 Teachers: Teaching Modality by Year

Year	All instruction in-person	Some remote, hybrid or not in-person instruction
2020-21	24%	76%
2021-22	90%	10%
2022-23	92%	8%
2023-24	89%	11%

■ All instruction in-person

■ Some remote, hybrid or not in-person instruction
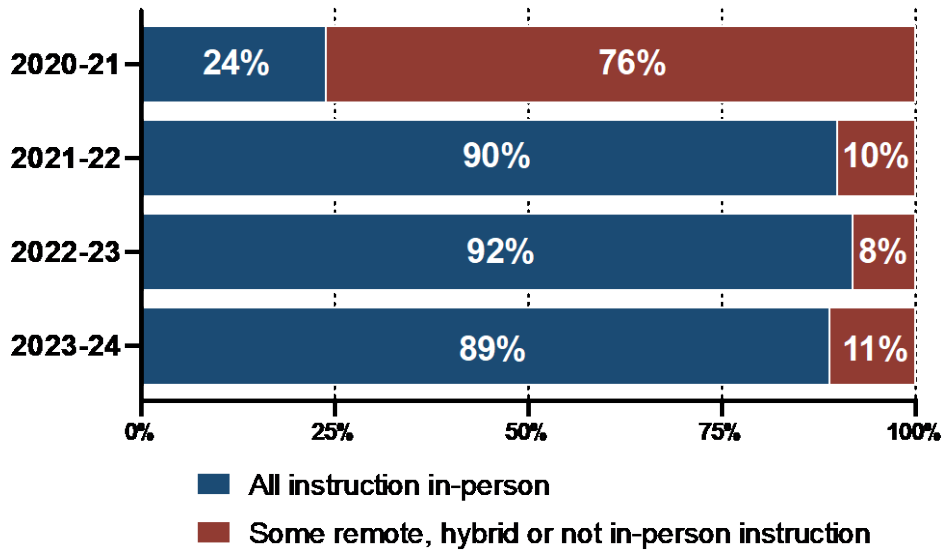
The proportion of teachers in K-12 conducting any online, remote, or hybrid instruction has remained constant in the wake of the pandemic. While three-quarters of teachers had some remote or hybrid instruction during the 2020-21 pandemic-impacted school year, the vast majority returned to be fully in the classroom the following year, with only 10% not fully in-person. There were only very small changes to the percentage in the 2022-23 or 2023-24 academic years, indicating that almost all classrooms that were going to return to fully in-person instruction did so as soon as possible.

These stable yearly trends suggest that there is a small but consistent group of teachers who are using online and digital formats for teaching. The specific format of these classrooms varies widely, as do the reasons for the adoption and continued use of digital formats. However, it is likely that this small fraction of remote or hybrid classes will remain into the future.

Textbook Formats

> **Textbooks are required by 83% of K-12 teachers, and the majority are provided in both print and digital formats. A quarter of middle and high school teachers offer only digital format textbooks, almost twice the rate of elementary school teachers.**

"I did not use the provided textbook very much this school year. The digital format was confusing and cumbersome to access... The stories and activities were often at too high of a level for students to use independently. I used mostly online sourced materials and modified or created my own materials."
- English Language Arts, Grades 6 - 8

"I have returned to a more print based format since returning from the pandemic as I get more group interaction, more work completion, more work submitted and better student scores. I hope to be able to return to a balance of print and digital as the students become more accustomed to interacting appropriately with one another and tech as an intellectual tool rather than a source of entertainment."
- Social Science, Grades 6 - 8

2023-24 K-12 Teachers: Textbook Use

- Required textbook — 83%
- No required textbook — 17%
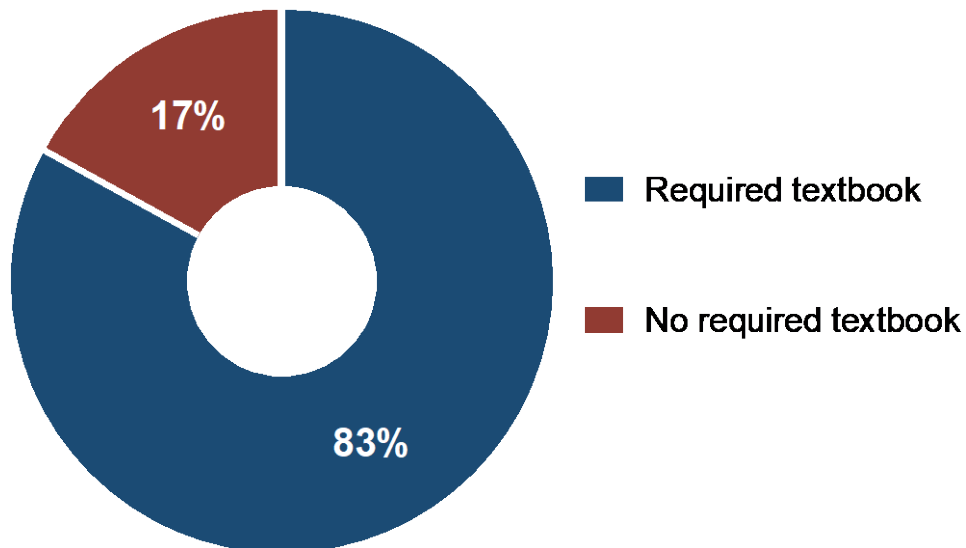
Textbooks remain a core course material. In the 2023-24 academic year, 83% of teachers reported using a required textbook for their classes. There were no differences by grade level for the rate of required textbook use.

However, even with required textbooks, a teacher's use of a textbook may vary. Some teachers reported that they plan their lessons entirely around a textbook, using it as a foundation for their classroom materials. Other say that while the textbook is required, it isn't used every day or every week.

Classrooms with no required textbook opted for many alternatives. Some teachers said they follow a textbook, but it isn't actively used by students. Many others replace the textbook with other materials — often other reading materials like printed news articles, novels, and other books. A few teachers have also adopted other types of materials to replace textbooks, citing a preference for consumable workbooks and online resources for music, games, and videos.

2023-24 K-12 Teachers: Required Textbook Format
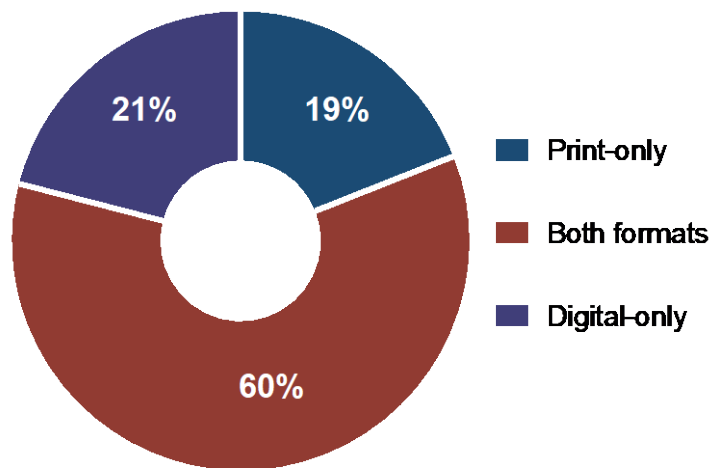
In the 2023-24 academic year, 60% of teachers offered a textbook in both print and digital formats to students. The remaining 41% of teachers were almost equally split between digital-only (21%) and print-only (19%) formats. Though most students have both formats available, this doesn't mean that the teacher or students actively use both during the school year – either format is available.

2023-24 K-12 Teachers: Required Textbook Format by Grade Level

Grade	Print-only	Both formats	Digital-only
9 to 12	20%	56%	24%
6 to 8	15%	59%	25%
4 to 5	20%	65%	15%
Pre-K to 3	26%	62%	12%
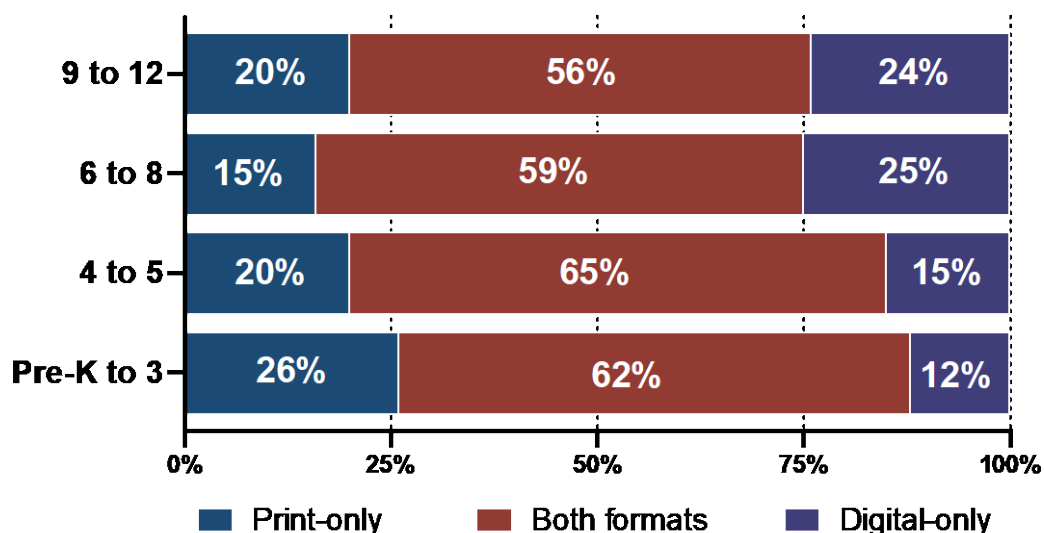
When viewed across grade levels, the digital-only option is more common in higher grades. One-quarter of teachers for grades 6 to 8 and grades 9 to 12 only offer the required textbook in a digital format. In fact, a digital-only option is offered more than print-only options: 16% for grades 6 to 8, 20% for grades 9 to 12. That said, both are less common than offering both formats for the required text. This is almost double the rate for digital-only formats compared to elementary grades: 15% for grades 4 to 5 and 12% for grades Pre-K to 3.

Teachers in elementary school report offering print-only formats more than digital-only formats. In grades Pre-K to 3, print-only represents 26% of respondents, while digital-only is less than half that, at 12%. For grades 4 to 5, print-only is 20% while digital-only is slightly less, at 15%.

K-12 Teachers: Required Textbook Format by Year

Year	Print-only	Both formats	Digital-only
2021-22	32%	49%	19%
2022-23	23%	56%	21%
2023-24	19%	60%	21%

Legend: ■ Print-only ■ Both formats ■ Digital-only
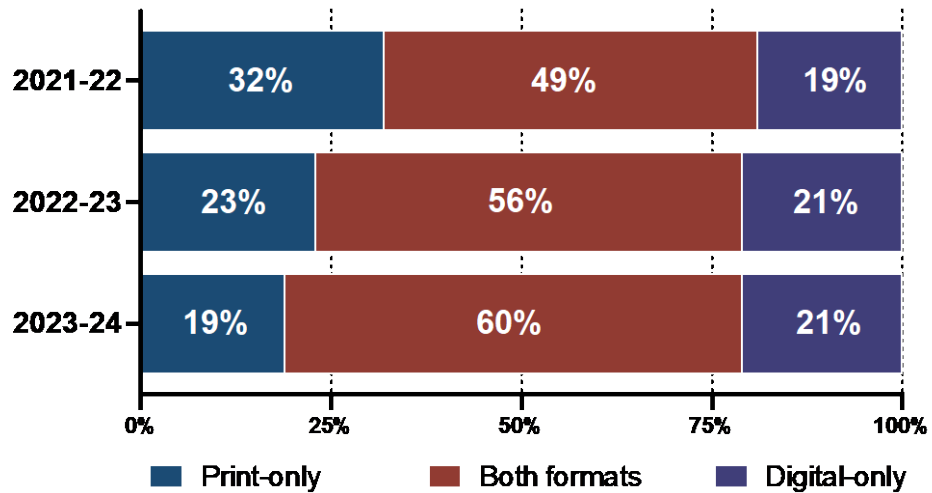
Since the 2021-22 academic year, there has been a rise in K-12 classrooms offering students the option of print or digital formats for required textbooks. In 2021-22, about half of all teachers (49%) reported that both formats were available. In 2022-23 this increased by 7% to 56%, and rose another 4% in 2023-24, to 60%.

The growth in availability for both formats comes from a decrease in print-only availability. In 2021-22, one-third of teachers (32%) reported only using print; this was almost halved to 19% over the next two years. In contrast, the proportion of digital-only format users has remained stable year-over-year, at around 19 to 21%.

Perceptions of Digital versus Print

> **Over half of teachers believe students learn better from print than digital, but a larger majority acknowledge digital materials provide more flexibility for students.**

"Technology is a wonderful TOOL but paper is great. Paper doesn't fail you when there are connectivity issues."
- Mathematics and Natural Sciences, Grades 9 - 12

"I have increased my usage of digital resources as more high-quality products and materials have become available in recent years."
- English Language Arts, Grades Pre-K - 3

2023-24 K-12 Teachers: Agreement with "Students learn better from print materials than they do from digital materials."

Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree
25%	32%	34%	7%	2%
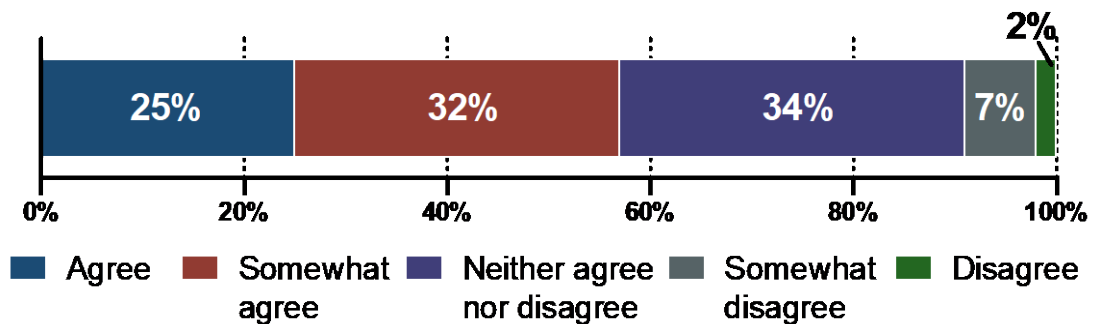
There has been a rise in the use of digital materials in the classroom following the global COVID-19 pandemic. However, teacher perceptions are not necessarily aligned with this change. In 2021-22 and 2022-23, most teachers reported that they preferred print materials to digital ones for student learning. The 2023-24 results are unchanged.

Most teachers say that they prefer print for student learning: 57% somewhat agreed or agreed with the statement "students learn better from print materials than they do from digital materials." A smaller portion of teachers (9%) somewhat disagreed or disagreed with the statement, suggesting they have stronger preferences for digital materials. Additionally, a full third of teachers (34%) responded that they "neither agree nor disagree" with the statement.

2023-24 K-12 Teachers: Agreement with "Digital materials provide greater flexibility for students."

27%	43%	19%	8%	3%

0%   20%   40%   60%   80%   100%

■ Agree   ■ Somewhat agree   ■ Neither agree nor disagree   ■ Somewhat disagree   ■ Disagree
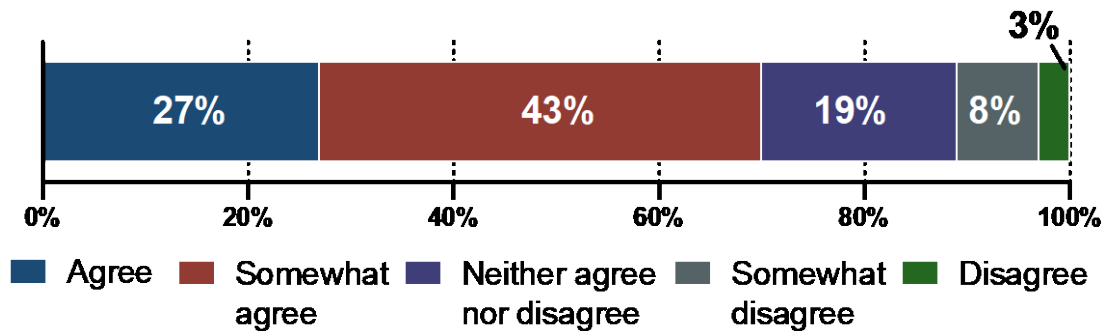
While teachers show a preference for print, a larger number recognize that digital materials have some benefits. Seventy percent of teachers "somewhat agree" or "agree" with the statement "digital materials provide greater flexibility for students". Nineteen percent of teachers "neither agree nor disagree." A smaller number of teachers (11%) said they "somewhat disagree" or "disagree" with the statement.

These results show that teachers have strong opinions, both positive and negative, about the materials they use in their classrooms. Many report that they are working on finding the way to best combine all the options and formats available to them, to promote student learning and to support their teaching preparations.

2023-24 K-12 Teachers Digital Materials Pros and Cons	
Pros	**Cons**
Integration across materials	Technological issues and failures
Increased student participation	Confusing interfaces
Streamline interactions	Distracting students
Personalization	Student cheating
Improved quality	Hard to find good quality

Technology offers compelling positives and negatives for teachers. Respondents believe that the digital market has matured, offering more options, better integration, more peer reviews, and improved quality. However, some teachers still left comments about a perceived lack of quality for their digital materials. Digital materials allow for increased student participation and streamline and personalization of interactions. On the other hand, teachers report that they still have issues trying to use digital materials. Teachers also worry about negative effects to student learning, such as confusing interfaces, increased distraction in classrooms, and greater chances for student cheating.
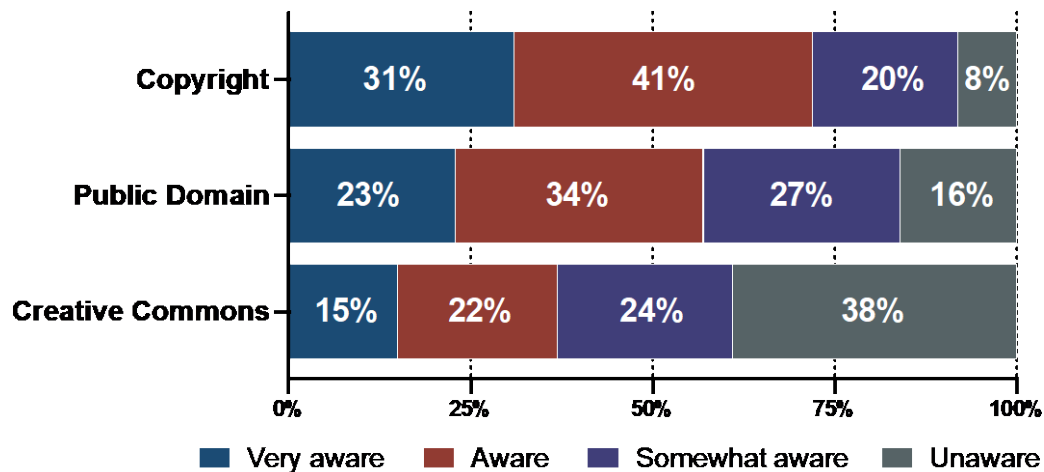
OER and Licensing Awareness

One-third of teachers report some level of OER awareness, the highest level measured and showing growth for two years in a row.

Open educational resources (OER) are a specific type of course material available for adoption. These materials are usually available in digital format for free or at a very low cost. Unlike commercially published materials, OER materials are available under an open license, most commonly a Creative Commons license, that allows materials to be revised and redistributed by users. Additionally, many OER materials are created and shared by teachers and peers, though there are also OER publishers.

2023-24 K-12 Teachers: Licensing Awareness

Measuring the awareness and use of OER materials is not completely straightforward. Many teachers will adopt materials without being fully aware of the licensing details, misunderstanding this specific, distinguishing aspects of OER. Additionally, some may confuse "open" with "free," and assume all free resources are OER.

To gauge awareness of OER, reports in this series have used a consistent question, which has proven to have the best balance in differentiating among the varying levels of awareness, without leading those with no previous knowledge of the concept. The specific wording has remained consistent to support year-to-year comparisons to the earlier surveys. Further, the measure of OER awareness incorporates both responses to Creative Commons licensing and OER awareness questions to ensure a high-quality output.

Awareness of specific licensing terms varies by the types of license. Teachers are most familiar with copyright licenses, with 72% stating they are "aware" or "very aware." The respondents are less familiar with Public Domain, at 57% "aware" or "very aware," or Creative Commons, with only 37% "aware" or "very aware." The level of awareness for all three licenses has remained constant from the 2022-23 measurements.

2023-24 K-12 Teachers: OER Awareness

Legend:
- I am very aware of OER and know how they can be used in my courses
- I am aware of OER and some of their use cases
- I am somewhat aware of OER, but I am not sure how they can be used
- I have heard of OER but don't know much about them
- I am not aware of OER
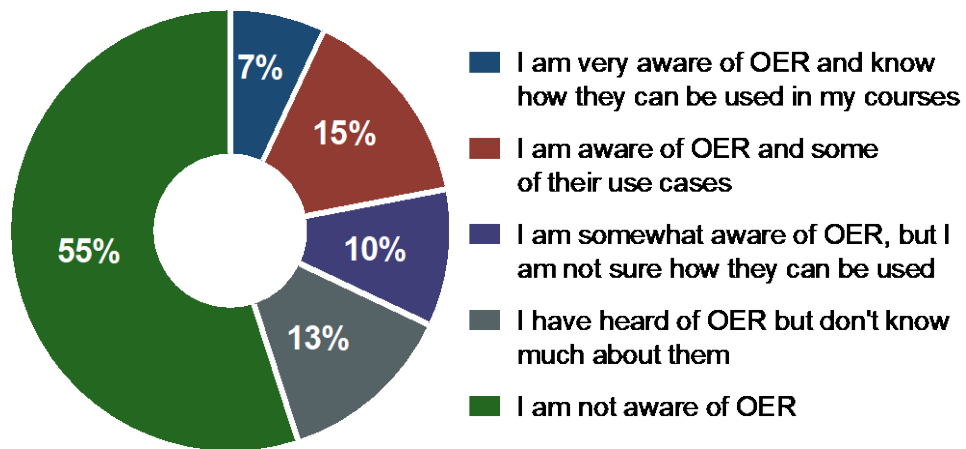
For 2023-24, over half of K-12 teachers report that they are not aware of OER and have not heard of it. The remaining group of teachers are split between various levels of awareness.

Thirteen percent of teachers who have heard of OER but do not know any more details, indicating they have some name recognition but nothing further. Another 10% are "somewhat aware" of OER. There are 22% of teachers who say they are "aware" (15%) or "very aware" (7%) of OER.

K-12 Teachers: OER Awareness by Year

Year	Very aware	Aware of use cases	Somewhat aware	Total
2018-19	5%	12%	10%	27%
2020-21	5%	12%	11%	28%
2021-22	4%	9%	9%	24%
2022-23	7%	12%	9%	28%
2023-24	7%	15%	10%	32%

Legend:
- ■ I am very aware of OER and know how they can be used in my courses
- ■ I am somewhat aware of OER, but I am not sure how they can be used
- ■ I am aware of OER and some of their use cases
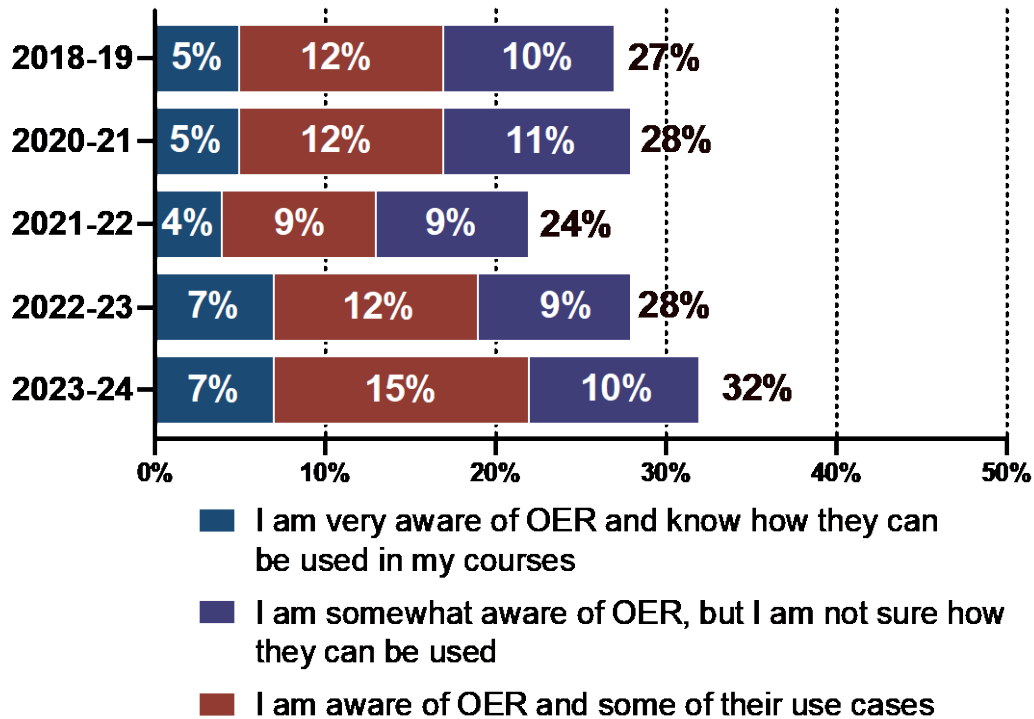
The level of OER awareness for K-12 teachers in 2023-24 is the highest measured in this report series. For this year, one-third of all teachers have awareness at some level, up 4% from the 2022-23. Most of the growth was in the "aware" category, with almost no change to the "very aware" category.

Newer teachers with less than 5 years of experience tend to be the least aware of OER. The level of OER awareness also increases with grade level, as middle and high school teachers demonstrate much greater levels of awareness than those in elementary schools. Teachers who teach some remote or hybrid instruction or those who teach computer science, natural science, or social science are also more aware than those who are fully in-person, or teach other subjects.

OER Use

Just under one-third of teachers report using OER material in their classrooms this year, mainly as supplemental materials rather than required materials.

"Sometimes I provide [OER] as supplemental materials, or exchange material from the curriculum the district uses to something that I think will support the majority of my students better... I wish I had more time to explore them and really dig in. There is just not enough time to plan for what I need to plan, and to also explore enough to shift."
- Natural Science, Grades 6 - 8

"If a student is struggling with a skill from previous years that the text book does not have [OER] allows me to supplement the students need."
- Mathematics, Grades 6 - 8

2023-24 K-12 Teachers: OER Use

5%	6%	19%	70%

0%   20%   40%   60%   80%   100%

■ Required material ■ Both required and supplemental ■ Supplemental material ■ Do not use
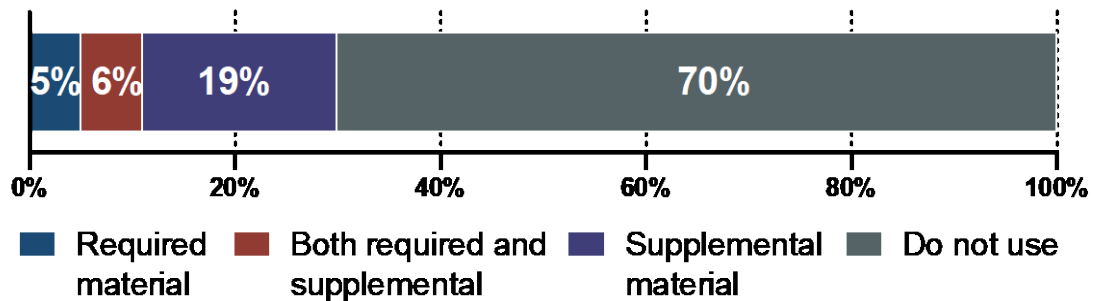
Thirty percent of teachers reported using OER in at least one classroom. Nineteen percent of these teachers were using OER as supplemental materials. One in ten teachers reported using OER as required materials, and most of these users were fully aware of OER and Creative Commons. A small portion of users were not aware of Creative Commons, indicating that they may not understand the full aspects of OER.

Many teachers provided details about their use of OER in their classrooms. There were many sources cited, with popular options including OpenStax textbooks for AP and college prep classes, the World History Project, and Illustrative Math. Teachers commonly reported using OER as supplemental material to "enhance" their existing materials. Many cited bringing in supplemental OER materials because of their specific content or formats (digital, videos, texts). A few comments highlighted how OER materials helped the teachers personalize and create different content for individual students and groups, both for providing content in areas where students are struggling and fleshing out more advanced topics.

SUMMARY

In the 2023-24 school year, many measures remained stable: most classrooms are fully in-person, the majority of teachers believe print materials are better for student learning, and there was almost no change to the proportion of teachers who only offered the required textbook in a digital format.

On the other hand, the adoption and acceptance of digital materials continues, often as supplemental materials. Teachers acknowledge that digital materials offer more flexibility for students, and a growing number of teachers offer both print and digital formats for their required textbook. This is also seen through the highest level of OER awareness that has been measured for this project, since the 2018-19 academic year.

Next Steps

The K-12 classroom continues to undergo a transition towards digital materials, though at a much more gradual pace than during the pandemic. Digital options for materials and teaching tools continue to grow and improve, increasing the likelihood teachers may choose them — or be forced to use them by their school district. Most K-12 teachers are mixing digital and print formats for both student materials and their own instructor materials based on their preferences. This project aims to follow these trends around digital adoptions over the next few years.

This report represents just a portion of the survey results. Additional reports, research briefs, and presentations will be released in 2024 on other topics in the survey. Some planned topics includes opinions from teachers and administrators on artificial intelligence (AI) in the classroom, and their perceptions about college readiness for high schoolers. All future publications will be available on our website: bayviewanalytics.com/OER.

METHODOLOGY

This survey was conducted in April 2024, with a total of 1,377 teachers and 206 administrators. The respondents come from 48 states and the District of Columbia.

The survey is designed to be representative of all public-school districts in the United States that operate schools. Information on these districts comes from the Common Core of Data (CCD) from the U.S. Department of Education's National Center for Education Statistics (http://nces.ed.gov/ccd/ccddata.asp).

Teachers and administrators were invited to participate in the survey through an email invitation. The selected groups were chosen randomly from a commercial source of email addresses. During the survey response period, participants may have also received a reminder email asking them to participate in the research. Both the invitation and the reminder message contained a unique URL that, when clicked, would load the survey form in a web browser and pass the unique survey ID.

The invitation email, reminder email, and survey itself described the research project as well as the funding source for the study (The William and Flora Hewlett Foundation), and who was conducting it ("researchers at Bay View Analytics"). They were also told: "All survey respondents are provided complete anonymity; the William and Flora Hewlett Foundation does not see individual-level results. No personally identifiable information is released."

The questionnaires used in this study builds on those used in previous Bay View Analytics studies on K-12 educators and about the curriculum adoption processes. There were new questions added for this year's survey, as well as repeated questions from earlier reports in this project and others.

OER awareness was measured using the same approach as previous reports in this series, with questions about awareness of licensing mechanisms along with a general question on OER awareness.

DEFINITIONS

In addition to examining the curriculum adoption process, this study explores materials classified as open educational resources (OER). Creative Commons defines OER as:

> *Open Educational Resources (OER) are teaching, learning, and research materials that are either (a) in the public domain or (b) licensed in a manner that provides everyone with free and perpetual permission to engage in the 5R activities.*
>
> *Retain – make, own, and control a copy of the resource*
>
> *Reuse – use your original, revised, or remixed copy of the resource publicly*
>
> *Revise – edit, adapt, and modify your copy of the resource*
>
> *Remix – combine your original or revised copy of the resource with other existing material to create something new*
>
> *Redistribute – share copies of your original, revised, or remixed copy of the resource with others[1]*

An important aspect of the examination of the use of educational resources is the licensing status of said materials: who owns the rights to use and distribute the material, and whether faculty members have the right to modify, reuse, or redistribute said content. The legal mechanism that faculty are most familiar with is that of copyright. The U.S. Copyright office defines copyright as:

> *A form of protection provided by the laws of the United States for "original works of authorship", including literary, dramatic, musical, architectural, cartographic, choreographic, pantomimic, pictorial, graphic, sculptural, and audiovisual creations. "Copyright" literally means the right to copy but has come to mean that body of exclusive rights granted by law to copyright owners for protection of their work. … Copyright covers both published and unpublished works.[2]*

Of particular interest for this study is the copyright status of the primary textual material (including textbooks) that teachers select as core materials for their courses.

> *Copyright owners have the right to control the reproduction of their work, including the right to receive payment for that reproduction. An author may grant or sell those rights to others, including publishers or recording companies.[3]*

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[1] https://creativecommons.org/about/program-areas/education-oer/

[2] http://www.copyright.gov/help/faq/definitions.html

[3] http://legal-dictionary.thefreedictionary.com/copyright

Not all materials are copyrighted. Some content may be ineligible for copyright, copyrights may have expired, or authors may have dedicated their content to the public domain (e.g., using Creative Commons public domain dedication[4]).

> *Public domain is a designation for content that is not protected by any copyright law or other restriction and may be freely copied, shared, altered, and republished by anyone. The designation means, essentially, that the content belongs to the community at large.[5]*

An intermediate stage between traditional copyright, with all rights reserved, and public domain, where no rights are reserved, is provided by Creative Commons licenses. A Creative Commons license is not an alternative to copyright, but rather a modification of the traditional copyright license that grants some rights to the public.

> *The Creative Commons (CC) open licenses give everyone from individual authors to governments and institutions a simple, standardized way to grant copyright permissions to their creative work. CC licenses allow creators to retain copyright while allowing others to copy, distribute, and make some uses of their work per the terms of the license. CC licenses ensure authors get credit (attribution) for their work, work globally, and last as long as applicable copyright lasts. CC licenses do not affect freedoms (e.g., fair use rights) that the law grants to users of creative works otherwise protected by copyright.[6]*

The most common way to openly license copyrighted education materials — making them OER — is to add a Creative Commons license to the educational resource. CC licenses are standardized, free-to-use, open copyright licenses.[7]

This study also examines an emerging, subscription-based distribution model typically called "inclusive access," though often going by various names with no single clear definition. The common elements across all the variants of subscription-based models are digital distribution, multiple textbooks and/or classrooms included under one contract, and students included unless they opt-out.

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[4] https://creativecommons.org/publicdomain/zero/1.0/
[5] http://whatis.techtarget.com/definition/public-domain
[6] Personal communication from Cable Green, PhD, Director of Open Education, Creative Commons
[7] State of the Commons report: https://stateof.creativecommons.org

APPENDIX TABLES
In-Person and Remote Teaching

Teacher: Teaching Modality	
No, I provided all instruction in-person	89%
Yes, I provide some remote, hybrid, or not in-person teaching	11%

Teacher: Teaching Modality by Year				
	2023-24	2022-23	2021-22	2020-21
All instruction in-person	89%	92%	90%	24%
Some remote, hybrid, or not in-person teaching	11%	8%	10%	76%

Textbook Formats

Teacher: Required Textbook in Class	
Required textbook	83%
No required textbook	17%

Teacher: Required Textbook Format	
Print-only	19%
Both formats	60%
Digital-only	21%

Teacher: Textbook Format by Grade				
	Pre-K to 3	4 to 5	6 to 8	9 to 12
Print-Only	26%	20%	15%	20%
Both	62%	65%	59%	56%
Digital-Only	12%	15%	25%	24%

Teacher: Textbook Format by Year			
	2023-24	2022-23	2021-22
Print-Only	19%	23%	32%
Both	60%	56%	49%
Digital-Only	21%	21%	19%

Perception of Digital versus Print

Teacher: Agreement with statements		
	Students learn better from print materials than they do from digital	Digital materials provide greater flexibility for students
Agree	25%	27%
Somewhat agree	32%	43%
Neither agree nor disagree	34%	19%
Somewhat disagree	7%	8%
Disagree	2%	3%

OER and Licensing Awareness

Teacher: Awareness of Licensing

	Very Aware	Aware	Somewhat Aware	Unaware
Creative Commons	15%	22%	24%	38%
Public Domain	23%	34%	27%	16%
Copyright	31%	41%	20%	8%

Teacher: OER Awareness

I am very aware of OER and know how they can be used in the classroom	7%
I am aware of OER and some of their use cases	15%
I am somewhat aware of OER but I am not sure how they can be used	10%
I have heard of OER, but don't know much about them	13%
I am not aware of OER	55%

Teacher: OER Awareness by Year

	2018-19	2020-21	2021-22	2022-23	2023-24
I am very aware of OER and know how they can be used in the classroom	5%	5%	4%	7%	7%
I am aware of OER and some of their use cases	12%	12%	9%	12%	15%
I am somewhat aware of OER but I am not sure how they can be used	10%	11%	9%	9%	10%

OER Use

Teacher: OER Use	
Required Material	5%
Both Required and Supplemental Material	6%
Supplemental Material	19%
Do Not Use	70%