Understanding the "What" and "Why" of K-12 Instructional Materials to Support Student Success

April 13, 2024

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PRESENTATION DETAILS

- Research background
- Survey Details
- Textbooks
- Digital Materials for Students
- Digital Materials for Instructors
- Perceptions
- In Their Own Words
- Conclusions & Q&A
RESEARCH BACKGROUND
INTRODUCTION TO BAY VIEW ANALYTICS

Bay View Analytics offers a comprehensive suite of consulting services in survey design and statistical research. Our services build on nearly two decades of research and survey design, sampling, and statistical analysis expertise.

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Director of Research

Jeff Seaman, Ph.D.  
Director
Over a Decade of Research on OER Awareness

Survey asked about OER awareness

Higher Ed

K-12

COVID-19

Underway

Over 35,000 respondents across all our reports.

All Reports available at BayViewAnalytics.com/OER
Surveys aim to understand the role of OER

Goals of Surveys

- To understand the role of OER in Higher Education and K-12
- To quantify perceptions and awareness of OER including its open licensing (e.g., Creative Commons)

Respondents

- Admins, Faculty, Teachers, and Chief Academic Officers
- Nationally representative for geography and type of institution
SURVEY DETAILS
Survey Details

April 2023
1,205 Teachers
50 States
Respondent Details

- Respondents reflect all K-12 grade levels, though slightly more high school than elementary school teachers.
- Many disciplines represented, majority are Math, English, and Natural Sciences.
- 8% of teachers across all grades provide some remote instruction of any kind, slightly higher in higher grades.

Results presented on use of digital tools will represent their use in in-person classrooms, not remote learning.
TEXTBOOKS
MOST TEACHERS REQUIRE TEXTBOOKS

7 out of 10 teachers require textbooks for their classroom
**DIGITAL TEXTBOOKS ARE COMMON**

- **2021-22:**
  - Digital-Only: 19%
  - Both: 49%
  - Print-Only: 32%

- **2022-23:**
  - Digital-Only: 21%
  - Both: 56%
  - Print-Only: 23%

10% fewer print-only option available in 2022-23 than the year before.
Digital-only and digital options more likely in higher grades

Textbook Format by Grade Level

- **9 to 12**: 29% Digital, 53% Both, 18% Print
- **6 to 8**: 26% Digital, 54% Both, 20% Print
- **4 to 5**: 14% Digital, 62% Both, 25% Print
- **Pre-K to 3**: 9% Digital, 57% Both, 34% Print

4 in 5 teachers have digital textbooks
1 in 3 teachers use print only textbooks
DIGITAL MATERIALS FOR STUDENTS
Survey asked teachers about their use and desire for multiple student-focused digital materials:

<table>
<thead>
<tr>
<th>Digital Materials for Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clickers or Polling Devices</td>
</tr>
<tr>
<td>Educational video games</td>
</tr>
<tr>
<td>Free Online Instructional Videos</td>
</tr>
<tr>
<td>Online or virtual Labs</td>
</tr>
<tr>
<td>Publisher-Provided Instructional Videos</td>
</tr>
<tr>
<td>Publisher-Provided Mobile or Tablet Application</td>
</tr>
<tr>
<td>SMART Boards</td>
</tr>
<tr>
<td>Student Tablets or Laptops</td>
</tr>
</tbody>
</table>
Laptops and free online videos are universal

Digital Student Materials Used Monthly

- Clickers or Polling Devices: 16%
- Educational video games: 68%
- Free Online Instructional Videos: 90%
- Online or virtual Labs: 42%
- Publisher-Provided Instructional Videos: 44%
- Publisher-Provided Mobile or Tablet App: 29%
- SMART Boards: 57%
- Student Tablets or Laptops: 96%

Rare - Universal
SOME DIGITAL MATERIALS ARE LESS COMMON IN HIGHER GRADES

Digital Student Materials Used Monthly by Grade Level

- Educational video games
  - 9 to 12: 50%
  - 6 to 8: 44%
  - 4 to 5: 43%
  - Pre-K to 3: 19%
  - 73% in 9 to 12, 73% in 6 to 8, 51% in 4 to 5, 19% in Pre-K to 3

- Online or virtual Labs
  - 9 to 12: 31%
  - 6 to 8: 34%
  - 4 to 5: 36%
  - Pre-K to 3: 46%
  - 46% in 9 to 12, 44% in 6 to 8, 43% in 4 to 5, 36% in Pre-K to 3

- Publisher-Provided Instructional Videos
  - 9 to 12: 43%
  - 6 to 8: 31%
  - 4 to 5: 43%
  - Pre-K to 3: 54%
  - 54% in 9 to 12, 43% in 6 to 8, 43% in 4 to 5, 60% in Pre-K to 3

- Publisher-Provided Mobile or Tablet App
  - 9 to 12: 27%
  - 6 to 8: 19%
  - 4 to 5: 43%
  - Pre-K to 3: 59%
  - 60% in 9 to 12, 43% in 6 to 8, 43% in 4 to 5, 59% in Pre-K to 3

- SMART Boards
  - 9 to 12: 63%
  - 6 to 8: 63%
  - 4 to 5: 63%
  - Pre-K to 3: 63%

Clickers, Free online instructional videos, and student tablets or laptops are used equally across grades.
Many teachers would use more digital materials

Percent of Non-Users that Want to Use Digital Material

- Clickers or Polling Devices: 41%
- Educational video games: 38%
- Free Online Instructional Videos: 30%
- Online or virtual Labs: 38%
- Publisher-Provided Instructional Videos: 32%
- Publisher-Provided Mobile or Tablet App: 25%
- SMART Boards: 47%
- Student Tablets or Laptops: 50%

Almost 1 in 3 teachers would want to use any of the student digital materials that they are not currently using.
LOWER USE BUT HIGHER DEMAND FOR VIDEO GAMES IN HIGH SCHOOL

Educational Video Games

<table>
<thead>
<tr>
<th>Grade Levels</th>
<th>Used Monthly</th>
<th>Wants to Use</th>
<th>Does Not Want to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-K to 3</td>
<td>84%</td>
<td>5%</td>
<td>11%</td>
</tr>
<tr>
<td>4 to 5</td>
<td>85%</td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td>6 to 8</td>
<td>73%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>9 to 12</td>
<td>50%</td>
<td>24%</td>
<td>27%</td>
</tr>
</tbody>
</table>

All others were consistent across grade levels
Wide variety in use across disciplines

Student Materials Used Monthly by Discipline

- Clickers or Polling Devices
  - Mathematics: 14%
  - English language arts: 13%
  - Natural science: 23%
  - Social science: 23%

- Educational video games
  - Mathematics: 49%
  - English language arts: 61%
  - Natural science: 67%
  - Social science: 86%

- Free Online Instructional Videos
  - Mathematics: 54%
  - English language arts: 73%
  - Natural science: 86%
  - Social science: 95%

- Online or virtual Labs
  - Mathematics: 23%
  - English language arts: 33%
  - Natural science: 83%
  - Social science: 95%

- Publisher-Provided Instructional Videos
  - Mathematics: 32%
  - English language arts: 35%
  - Natural science: 40%

- Publisher-Provided Mobile or Tablet App
  - Mathematics: 23%
  - English language arts: 23%
  - Natural science: 62%
  - Social science: 61%

- SMART Boards
  - Mathematics: 62%
  - English language arts: 54%
  - Natural science: 93%
  - Social science: 99%

- Student Tablets or Laptops
  - Mathematics: 99%
  - English language arts: 98%
  - Natural science: 99%
Digital Instructor Materials
TEACHERS ALSO REGULARLY USE DIGITAL MATERIALS

Digital Instructor Materials Used Monthly

- Online or Digital Gradebook: 89%
- Online or Digital Attendance Tracking: 88%
- Self- or School-Created Lecture Slides: 82%
- Free Online Instructional Videos: 79%
- Publisher-Provided Instructional Videos: 44%
- Publisher-Provided Lecture Slides: 33%
Digital Instructor Materials Used Monthly by Grade Level

- **Self- or School-Created Lecture Slides**: More use in higher grades
- **Publisher-Provided Lecture Slides**: Lower use across higher grades
- **Publisher-Provided Instructional Videos**: Lower use across higher grades
- **Online or Digital Gradebook**: More use in higher grades
- **Online or Digital Attendance Tracking**: More use in higher grades
- **Free Online Instructional Videos**: Similar across grades

More use in higher grades

Lower use across higher grades

More use in higher grades

More use in higher grades

Similar across grades
DISCIPLINES ONLY VARIED ON THEIR USE OF FREE VIDEOS

Digital Instructor Materials Used Monthly by Grade Level

- Free Online Instructional Videos
  - Social science: 63%
  - Natural science: 79%
  - English language arts: 77%
  - Mathematics: 87%
PERCEPTIONS
The majority of teachers expressed a preference ("agree" at some level to the statements) for print materials for themselves and for their students.

Agree = Prefers Print
Disagree = Prefers Digital
Opinions are shared across grades, though not all subjects

Grades
- Generally similar across teachers for all statements
- Younger teachers slightly prefer print
- Teachers of older students report they slightly prefer print more than younger students

Disciplines
- Math teachers are most distinct in preference for print across all three statements
- No differences between other disciplines
IN THEIR OWN WORDS

FACULTY COMMENTS
I am trying to pull away from all the devices and window dressing. It's getting in the way of meaningful connection with the human beings in the classroom. They have their faces in a screen far too much as it is. Back to basics.

My goal is to find a way to blend students' love of digital interactive learning with meaningful reinforcement of learning. I often use digital media to help reinforce learning that took place in whole or small group settings, hoping that students will have opportunities to individually put new learning into practice.

Digital platforms that require discourse have been most effective for student learning. The discussion prompts that work best are relevant to students, based on current topics of interest, and help student to build academic language by providing scaffolds to assist with discussion.

I often use the physical version of the lesson first then then students upload their information to the digital version. This ensure that they are able to edit and correct work before it is uploaded.
My school does not have enough laptops to make them available to classroom use on a regular schedule. I do use video physics for collecting data on iPads that I wrote a grant to purchase.

I would love to utilize more student technology but devices are limited.

I think we need to go back to more old school methods to get away from a computer screen and reteach basic skills of life. I understand digital literacy, but kids today are too "over-connected" online and need the break to learn proper social behaviors and have less digital distractions.
I find most publisher materials to be too static. I like to change up a lot based on student and class needs. I need more fluid materials.

I find that if I create my own slides, I can cover all the content at a reasonable pace.

I use a blend of teacher created and publisher created materials. I use Teachers Pay Teachers a lot as supplemental material.

Publisher-created materials are not good. They are written for adults at a student grade level. They are not written for kids.

I really like having instructor courseware materials available! They help me to stay focused on the task, as the teacher.
CONCLUSIONS
Digital Materials in K-12

- Digital textbooks are very common – available by 4 in 5 teachers
- Beyond the textbook, many student-focused digital tools are used regularly
  - Free online videos and student laptops/tablets are almost universal
  - Many teachers report that they would want to use more digital materials
  - Educational videos for higher grades are an unmet need
- Instructor digital materials are regularly used as well
  - Bigger difference in patterns across grade levels than student materials
- Discipline can affect use of digital materials (e.g., video games more common for sciences, online labs more than double use for natural sciences) and strongly affects perceptions of digital
THANK YOU!

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