Inclusive Learning Series

Research Insights from the Ally Community

Tools for Inclusive Course Design: Engagement with Accessibility Feedback

Abstract

Improving the accessibility of digital course content can help ensure students with disabilities have more equitable access to their course files as well as improve the learning experience for all students. Yet many instructors remain unaware about accessibility barriers in their courses and untrained in accessible content authoring practices. This paper examines engagement with a set of accessibility tools desgined to increase awareness about the accessibility of digital course files (Accessibility Indicators), deliver guidance about how to correct accessibility issues (Instructor Feedback), and provide insight into the prevalence and severity of issues across a course (Course Accessibility Report).

Key Findings

- "Low" score indicators were the most commonly clicked of the four indicator types, perhaps because the most common file types in Learning Management System courses - PDFs and Images - had the lowest average starting accessibility score. The conversion rate between clicking an indicator and attempting to fix a file through the Instructor Feedback varied significantly among file types - Images had the highest conversion rate at **87%** compared to PDFs with the lowest conversation rate at **24%**. During the Spring 2020 term, **683,638** indicator clicks occurred through the course context while **208,417** indicator clicks occurred through the Course Accessibility Report (CAR).
- The percentage of files altered that resulted in an improved accessibility score also varied by file type - Images had the highest success rate at **88%** compared to Word Docs with the lowest success rate at **76%**. Presentations were the file type with the least number of improvements, but also had the highest average starting accessibility score. The Course Accessibility Report (CAR) accounted for **26%** of all 2020 files improved, though the CAR accounted for an average of **50%** of file improvements in the 100 courses with the most files improved.

Instructor Feedback Engagement

1,807,560 Accessibility Indicator clicks in one year (May 2019 - May 2020)

823,322 Files altered through the Instructor Feedback in one year

692,564 Files with an improved accessibility score in one year

73,295 Launches of the Course Accessibility Report in Spring 2020

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Evaluating Engagement and Impact of Accessibility Feedback Tools in LMS Courses

Study Context

Disability support and accessibility teams have historically been tasked with ensuring that students with disclosed disabilities have access to course content that meet their specific learning needs. Despite the best efforts of these teams to support their students, challenges to such a "reactive" approach to accessibility include:

- Ensuring students with disclosed disabilities have timely access to their materials when instructors modify and update their courses
- Upwards of 66% of students who may qualify for accommodations do not disclose they have a disability

In addition to these challenges, a growing interest in Universal Design for Learning, increased student usage of mobile phones, and research into the benefits of accessible content to all learners are driving institutions to shift to a more proactive model focused on inclusion. To catalyze this shift, institutions require tools that help them increase awareness and scale professional development about accessibility issues and accessible content authoring.

This paper examines usage of the Blackboard Ally accessibility solution, focusing on user engagement with accessibility score indicators and accessibility outcomes using the Instructor Feedback and Course Accessibility Report.

Data Set and Research Questions

The data set includes user events associated with Ally's accessibility tools over a 12-month period (May 2019 to May 2020). These events include:

- Clicking an Accessibility Indicator in a course
- Launching the Course Accessibility Report
- Attempting to fix a file through the Instructor Feedback

Users in this paper are defined as anyone at an institution with a course editing privilege within a Learning Management System (LMS) course. This may include faculty, instructional designers, administrators, and accessibility specialists. Over 550 U.S. institutions registered a "File Altered" event in the database, but the data set focuses on a subset of 371 U.S. colleges and universities with Ally enabled in a majority of LMS courses. While Ally reports on issues with HTML files uploaded to the LMS and WYSIWYG content created in the LMS as well, the analysis focuses on engagement and success rates addressing issues with Images, PDFs, Word Docs, and Presentations, which also tend to have the most severe accessibility issues.

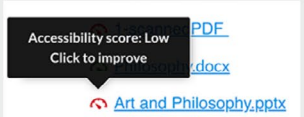
? *How does engagement with accessibility indicators vary by file type and tool?*

? *How do improvement rates in accessibility score vary by file type and tool?*

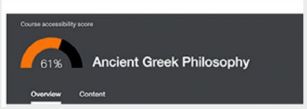
Workflow for Addressing Accessibility Issues

Open LMS course → Select an Indicator → Make a fix through the Instructor Feedback

Course Context



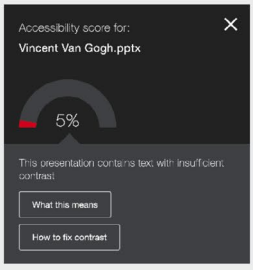
Course Accessibility Report



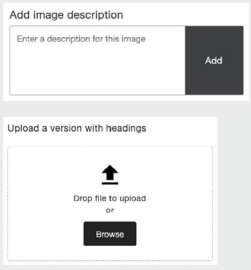
File Score Indicators

- Low Score (0% - 33%)
- Medium Score (34% - 66%)
- High Score (67% - 99%)
- Perfect Score (0% - 44%)

Guidance on Issues



Add or upload fix



Initiating Accessibility Feedback

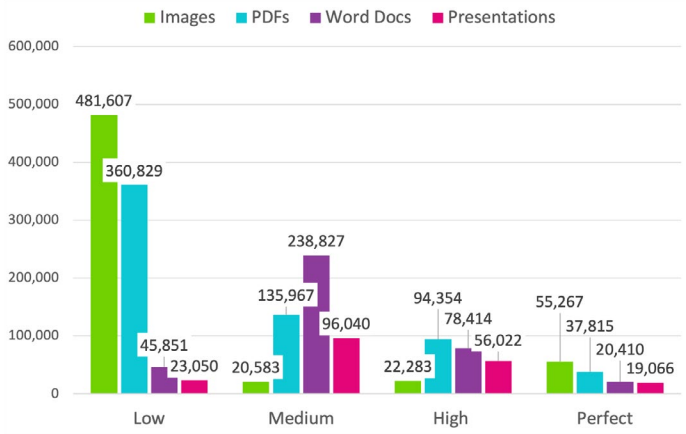
"Low score" red gauges accounted for **50% of all Indicator clicks**. Thenumber of low score Indicator clicks may reflect users' motivations to understand and address the most severe accessibility issues. The data also suggests that red Indicators are likely the most prevalent Indicator type in many courses. For the two most prevalent file types, **79% of images had a red indicator** due to missing descriptions and **59% of PDFs were either scanned or untagged**, also resulting in a red indicator. In the medium score category, Word Docs had an average file score in the "medium" range, and were **1.5 times more prevalent** in courses than presentations. Images were the most engaged file type with a "Perfect score," perhaps because image descriptions can be edited and qualitatively improved directly through the IF even after reaching a perfect score.

Starting in August 2019, institutions were able to add the Course Accessibility Report (CAR), which could then be launched by the user from the the course tools menu in the LMS. During the 2020 term, the **CAR was launched by 276 institutions in over 10,000 courses** , with an average of **6.7 launches per course**. **377 institutions** launched the CAR a total of **25 times or more**. Users engaged the "Issues List" on **42% of CAR launches,** which allows them to focus on files with a shared accessibility issue. By comparison, "Content List" was selected on **26% of launches,** which allows them to view files in order of accessibility score. In both cases, the most severe issues and lowest scoring files appear at the top of the list, also likley contributing to more clicks on files with red Accessibility Indicators.

Files Altered and Success Rate

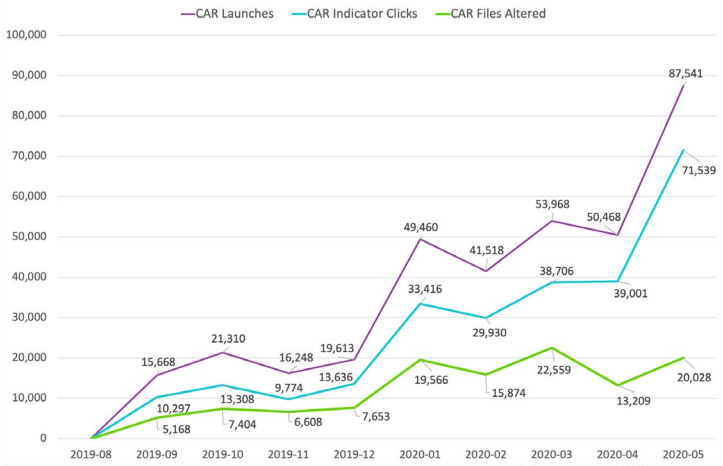
PDFs and images made up 64% of total file content and accounted for **66%** of the total indicator clicks. The overall conversion rate between clicking an indicator and attempting to alter a file through the IF was **45.5%** (Note: conversion rate does not include files altered directly through the LMS). Conversion rate varied significantly between images (**87%**) and the other three file types (all between **24% and 27%**), not surprising given images tend to be the fastest issue to address. Since users self-report replacing inaccessible Word, PDFs, and PowerPoint directly through the LMS and not Ally, the conversion rate for those file types may be higher if access to the LMS data were available. **84% of the 832,322** files altered through the IF resulted in an improved accessibility score and none of the file types had a success rate lower than **75%** (Word Docs had the lowest success rate at **76%**).

Total Indicator Engagements by Score: One Year

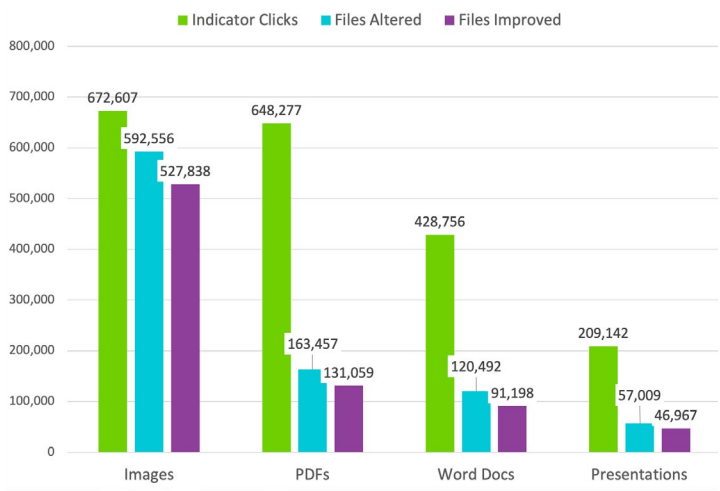


> ***I go into the file menu and I just run down my files and look for all those green dashboards, and of course I want them to all be perfect.***
>
> ***- Dr. Barbara Heard, Atlantic Cape CC***

CAR Launches and CAR Indicator Clicks: One Year



Total IF Engagement by File Type: One Year



PDFs had the lowest conversion rate and the second-lowest success rate, which at **80%** is still an encouraging success rate given the complexity of accessibility issues with PDFs. Images- identified in the CAR as "easiest" files to fix- had the highest success rate at **88%** and also saw the highest average increase per successful fix. From a random sample of 5,000 files improved:

- Images had an average starting score of **35.0%** and improved **56 percentage points**
- PDFs had an average starting score of **36.7%** and improved **48 percentage points**
- Word Docs had an average starting score of **62.6%** and improved **26 percentage points**
- Presentations had an average starting score **66.9%** and improved **23 percentage points**

Conversion rate and success rate also vary depending on whether the user engaged the file through the course context or through the CAR, illustrated in the table in the top-right. Indicators that appear next to files in courses are perhaps more prone to exploration than those accessed deliberately through the CAR, which may help explain the disparity in conversion rates between the two tools. Further, the breakdown of file types improved through the two tools reveals that images represented a larger percentage of fixes through the CAR, which would also contribute to a higher success rate.

- Percent of Images improved - CAR: 72%; Course: 50%
- Percent PDFs improved - CAR: 13%; Course: 21%
- Percent Docs improved - CAR: 7%; Course: 16%
- Percent of Presentations improved - CAR: 7%; Course: 13%

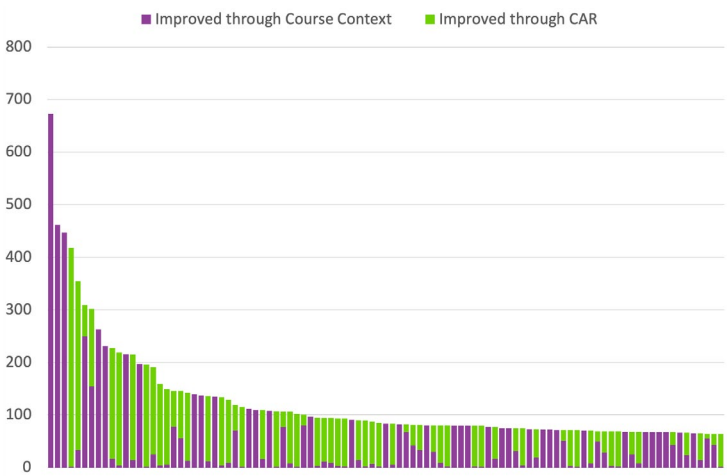
Of the **2,582 courses** with at least five files improved in March, the top-100 courses saw average of **49%** of files improved per course made through the CAR. For the remaining 2,482 courses, just **12%** of the improvements per course were made through the CAR.

Comparing Conversion and Success Rates: Terms and Tools

Term and Tool	Indicator Clicks (conversion rate to files altered)	Files Improved (success rate of files altered)
F2019 CAR	72,839 **(64.5%)**	42,251 **(89.9%)**
F2019 Course Context	385,314 **(38.5%)**	122,224 **(82.5%)**
S2020 CAR	195,414 **(72.2%)**	125,231 **(88.8%)**
S2020 Course Context	661,142 **(41.2%)**	224,920 **(82.7%)**

> ***Ally gets to the faculty where they are at, and gives them the information in small digestible bites, which is really important.***
>
> ***- Lucy Greco, UC Berkeley***

Comparing Files Improved through CAR and Course Context: Top 100 Courses with Most Files Improved



Making Inclusive Design an Integral Part of High-Quality Course Design

For many instructors just getting started with accessibility best practices, the presence of the Indicators next to their course files generates initial awareness about issues with their content. They can build on this initial awareness by navigating from the course context to the Course Accessibility Report, where they can more readily identify their most prevalent or impactful issues. Given evidence that the CAR plays a more prominent role in courses with more fixes, these course-level insights may aid in identifying a more efficient pathway forward to addressing those issues. By learning about accessible content authoring, instructors can fix issues with past content, but also apply those techniques when authoring new content. Such a proactive approach marks a culture shift where accessibility is no longer something addressed after-the-fact, but instead becomes an integral part of designing high qualiy learning experiences that benefit all students.