



Inclusive Learning Series

Research Insights from the Ally Community



Blackboard



An Impact on Inclusive Education Across the United Kingdom

Universities throughout the United Kingdom serve a diverse population of students with a variety of learning needs and abilities. More accessible digital course content delivered in a variety of file formats helps ensure students have access to learning materials that work better with assistive technologies, mobile devices, and study tools. Blackboard Ally integrates into four major Learning Management Systems (LMS) to help institutions address accessibility barriers with course content, increase instructor awareness about accessible content authoring, and improve how students engage with their course materials.

Institutional Report

View overall accessibility trends in the LMS over time. Focus at the issue level or course level for strategic planning and benchmarking. Analyze detailed usage data of Ally tools.

Alternative Formats

Machine learning algorithms automatically generate eight unique file formats from the instructor original. Improve accessibility and usability of course files for all students. Increase learner flexibility and options for engagement.

Instructor Feedback

Accessibility indicators next to course files raise awareness and prompt engagement. Guidance helps faculty address issues and develop authoring skills. Course Accessibility Report provides actionable insights to faculty.

Ally Adoption in the U.K.



33 Universities currently using Ally in the Virtual Learning Environment



479,360 Students benefiting from Ally (based on full-time enrollment)



6,286,224 Files checked for accessibility in 2019-2020 academic year



5,291,225 HTML items checked for accessibility in 19-20 academic year



1,018,438 Alternative Formats downloaded through Ally in 9 months



22,051 Files improved through the Instructor Feedback in 9 months



Accessibility Trends and Ally Usage in Universities across the United Kingdom

Study Context

Providing students with disabilities equitable opportunities for academic success is fundamental to the broader mission of higher education in the U.K. Since the digital accessibility regulations went into effect across Europe and the U.K. in September 2018, efforts to proactively address barriers to educational access have accelerated. These efforts include an increased focus the accessibility of digital course content uploaded to the Virtual Learning Environment (VLE), which can directly impact students' abilities to successfully participate in their courses. To provide higher education institutions with guidance on how to meet the requirements of the accessibility regulations, the All-Party Parliamentary Group for Assistive Technology and Policy Connect assembled a report entitled "[Accessible Virtual Learning Environments](#)."

Beyond supporting students with disclosed disabilities, a pedagogical approach informed by Universal Design for Learning (UDL) principles can improve the learning experiences for all students. In his [Accessibility Maturity Model for Education](#), inclusivity expert Alistair McNaught makes the case that "Accessibility is an emergent property of high quality teaching and learning." As institutions move to consider inclusivity as an integral component of effective course design, there is an increasing need to understand current barriers to access with digital content, strategies for addressing those barriers, and the adoption and usage of UDL tools on teaching and learning. This paper takes up this line of inquiry by exploring data from the Blackboard Ally accessibility solution.

Data Set and Research Questions

Analysing data collected from the Blackboard Ally software, this paper focuses on content accessibility and Ally tool usage by students and instructors at universities across the U.K. The data set includes 33 universities with Ally enabled in their VLE courses during the Autumn 2019 and Spring 2020 term. While term durations vary based on an institution's academic calendar, for the purposes of the study, Autumn 2019 includes Ally data events from August through December and Spring 2020 includes data events from January through the first week of May.

- ? *How are overall accessibility scores and critical accessibility issues in the VLE changing over time?*
- ? *How do students make use of digital course content available in different modalities and formats?*
- ? *How do instructors use feedback in their courses to address accessibility issues with their course materials?*

Summary of Sections and Key Findings

The analysis is organized into three sections, where each section explores one of the three core components of the Blackboard Ally Solution:

Institutional Report

The first part of the paper aggregates accessibility data represented in the Institutional Reports of the 33 units from the 2018-2019 and 2019-2020 academic years. Data include average overall files score, WYSIWYG score, and prevalence of accessibility barriers across four critical issues. Findings suggest accelerated improvement in overall accessibility score compared to historical trends identified in previous research. Progress on specific critical issues varied by issue and by institution, while those with the most overall progress made the largest gains on images missing description and untagged PDFs.

Alternative Formats

The second part analyses usage of the Alternative Formats during the two terms. Though PDFs were the most prevalent file type in courses, Presentations were most frequently downloaded as alt formats, largely as Tagged PDFs. There was an overall uptick in average downloads between Autumn and Spring, when 11 units exceeded 1.5 downloads per FTE.

Instructor Feedback and Course Accessibility Report

The third part examines usage of the Instructor Feedback and Course Accessibility Report (CAR) during the two terms. While accessibility indicators for PDF files were most frequently engaged, Image files had the most improvements. For the 50 courses with the most files improved, 60% of the file fixes were done through the CAR. By comparison, across all courses, files fixed through the CAR accounted for just 26% of total fixes.



Institutional Report Data

Avg. Accessibility Scores and Critical Issues: 2018-19

Overall Scores and Issues	Small	Medium	Large
Overall Files Score	42.5%	45.2%	41.1%
Overall WYSIWYG Score	97.3%	97.1%	97.3%
Scanned PDFs (% of Total PDFs)	2,908 (13%)	8,507 (12%)	16,973 (15%)
Untagged PDFs (% of Total PDFs)	8,254 (41%)	25,876 (41%)	54,726 (44%)
Docs Missing Headings (% of Total Docs)	12,439 (25%)	34,022 (25%)	51,162 (24%)
Images Missing Description (% of Total Images)	10,998 (82%)	22,592 (83%)	34,065 (85%)

The tables above compare accessibility data for the 2018-2019 and 2019-2020 academic years from the Ally **Institutional Reports** for the 33 U.K. universities across the three FTE bands. The “Files Score” and “WYSIWYG Score” are the average scores of files (PDFs, Word, PowerPoint, Images) added to the VLE and HTML content created using the VLE editor respectively during the two academic years.

Each score approximates how closely the file or HTML item meets WCAG 2.1 AA standards that can be checked using automated tools. The tables also compare the average number of files with critical accessibility issues between the two academic years. The percentage score is the total number of files with the issue out of the total number of files in that academic year that could be affected by that issue.

Assessing Progress on Key Issues

Across all 33 units, the average **Files Score increased by 3.3 percentage points** between the two academic years. By comparison, a [previous data study of a random sample of 700,000 courses](#) found an increase in Files Score of just three percentage points over *five years*. Given the large number of files with severe accessibility issues and the slow pace of improvement historically, these initial gains appear promising. Progress at

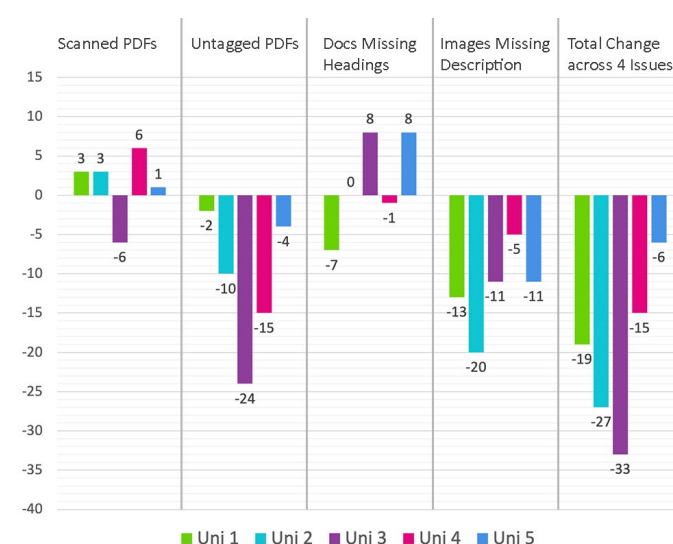
Avg. Accessibility Scores and Critical Issues: 2019-20

Overall Scores and Issues	Small	Medium	Large
Overall Files Score	44.5%	48.0%	45.9%
Overall WYSIWYG Score	96.8%	96.9%	96.5%
Scanned PDFs (% of Total PDFs)	2,123 (13%)	5,015 (11%)	11,052 (12%)
Untagged PDFs (% of Total PDFs)	6,952 (42%)	19,915 (43%)	45,854 (44%)
Docs Missing Headings (% of Total Docs)	9,987 (23%)	24,657 (23%)	40,383 (23%)
Images Missing Description (% of Total Images)	8,482 (81%)	16,393 (82%)	37,154 (75%)

the issue-level, however, is less consistent, with slight gains and regressions across the four issues and FTE bands.

For the five units that made the most total progress on critical issues (illustrated below), missing image descriptions saw the largest reduction in files with the issue, followed by untagged PDFs. Despite the significant progress on some issues, none of the 33 units made progress on all four critical issues, perhaps an impact of the transition to remote instruction during COVID-19.

Changes in Percentage of Files with Critical Issues between 2018-19 and 2019-20: Top 5 Performing Unis



Engagement with Alternative Formats

In the past nine months (August 2019 to May 2020), U.K. unis downloaded **over 1 million** Alt Formats, a **681% increase** from the prior year. Tagged PDF and HTML accounted for 89% of Alt Format downloads, consistent with the breakdown of downloads in the U.S. ePUB accounted for 5% of total downloads, followed by OCREd PDF (3%), and Audio MP3 (2.2%). While PDF was the file type most added to the VLE during the academic year, Presentations were most frequently downloaded as an Alternative Format.

- **592K Tagged PDFs** were downloaded from **1.67M** Docs and Presentations
- **29K OCREd PDFs** were downloaded from **305K** Scanned PDFs
- **311K HTML** files were downloaded from **3.37M** PDFs, Docs, and Presentations

11 of the 28 unis represented in the Spring 2020 box plot to the right exceeded **1.5 downloads per FTE**, while the median number of downloads per FTE was comparable to that of research universities in the U.S. Over nine months, the average number of Alt Format downloads and range per size category were:

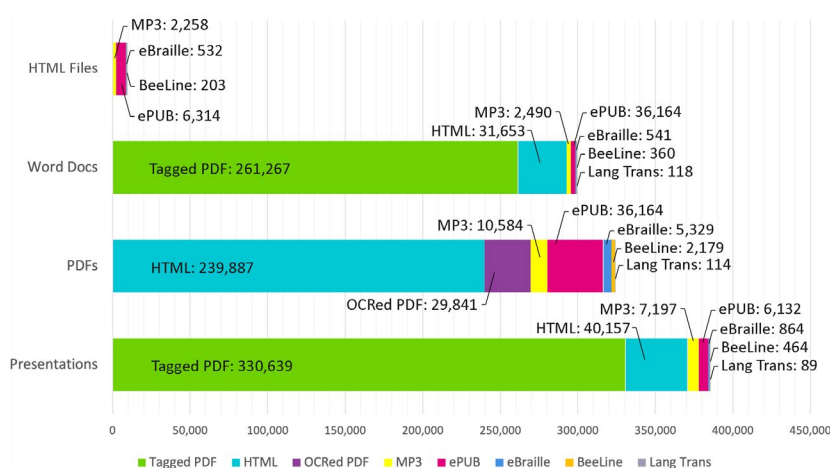
- Small: **10,623** (range of 2,563 to 34,605 downloads)
- Medium: **32,691** (range of 6,679 to 67,452 downloads)
- Large: **59,642** (range of 5,377 to 141,436 downloads)

Between the Autumn 2019 term and Spring 2020 term, the average number of downloads increased by 32% for small unis, 19% for medium unis, and 5% for large unis.

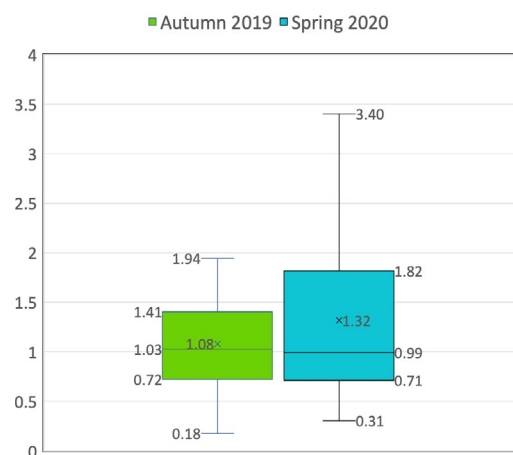
Focusing on the Autumn 2019 term represented in the bar graphs to the right, while the number of unique student downloaders decreased by 33% from the first three weeks to the last three weeks of the term, the number of downloads per downloader **increased from 2.40 to 2.80. The conversion rate between clicking the AF icon and downloading a format increased ten percentage points.** When considering drop-out rate and other factors affecting the number of students engaged with the VLE at the end of term, the decrease in unique downloaders appears consistent with findings in the U.S. The peak usage at the start of the Autumn 2019 term compared to all other weeks may also be the result of introducing a more prominent download icon that triggered an uptick in students exploring the feature.

Total Files Downloaded as Alt Format by File Type over 9 months

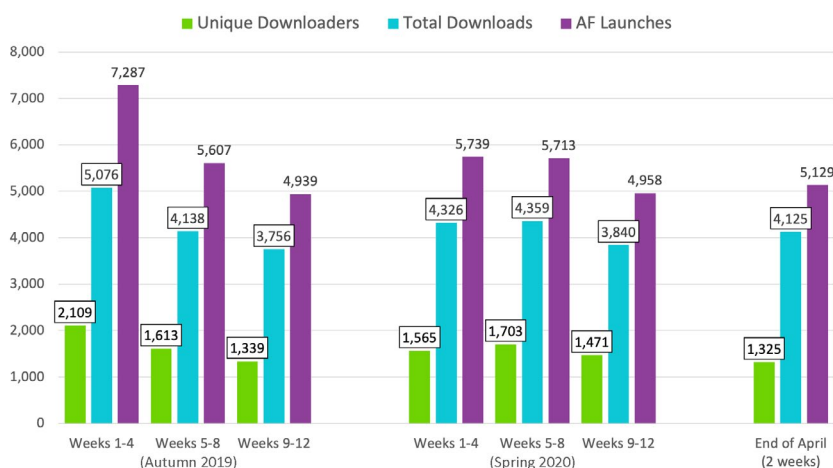
*BeeLine Reader and Language Translation were available in a limited number of courses



Alt Format Downloads per FTE: 28 Unis with Ally Active in Courses



Total Alt Format Engagement: 3-Week Avgs. across 12-week terms





Engagement with Instructor Feedback

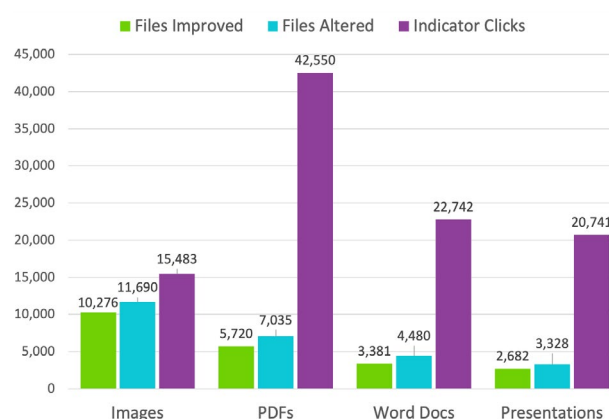
In the past nine months (August 2019 to May 2020), U.K. unis improved the accessibility scores of **over 22,000 files**, a **315% increase** from the prior year. During that time, **26%** of indicator clicks resulted in an attempt to fix the file through Ally, and **83%** of files altered resulted in an improved accessibility score. As the bar graphs to the right illustrate, conversion and success rates vary based on file type. Since Images are the only file type that can be fixed directly through the feedback, Images had an **87% conversion rate** compared to less than 20% for the other three file types. Consistent with findings in U.S research universities, images were also the most frequently improved file type, reflected in the progress institutions made on this issue in the previous graph. Given there were nearly twice as many PDFs added to the VLE during the 2019-2020 academic year compared to the other file types, it follows that indicators associated with PDFs would also be the most frequently engaged. Although presentations were the file type most downloaded as an Alt Format, they were the file type least frequently improved. Over 9 months, the average number of files improved and range per size category were:

- Small: **354** (range of 36 to 1,259 improvements)
- Medium: **818** (range of 108 to 3,884 improvements)
- Large: **1,089** (range of 71 to 2,472 improvements)

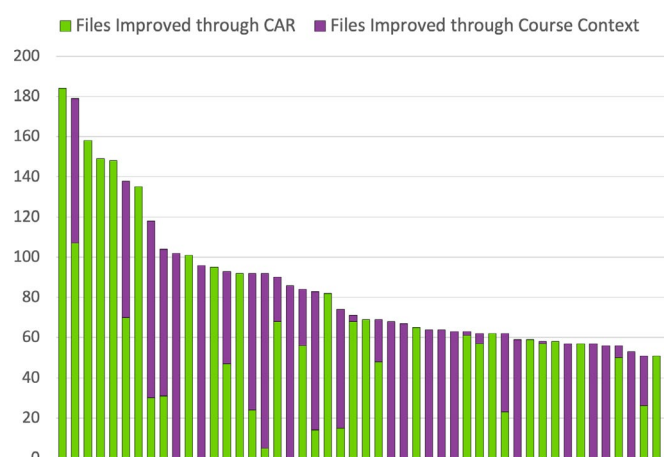
During the nine months, the **Course Accessibility Report (CAR)** was launched **8,852** times by 23 of the 33 unis, resulting in **6,322 files altered, or 26% of the total fixes**. For the 50 courses with the most files improved, **60%** of the file improvements were made through the CAR, and for the top 100 courses, **52%** of files improved were made through the CAR, providing some evidence that the CAR plays an important role in courses making the most progress.

Total Instructor Feedback Engagement by File Type over 9 Months

*"Files altered and improved" are limited to files uploaded through Ally. Additional fixes may be made directly through the VLE 5,629



Comparing CAR Fixes to Course Context Fixes : Top 50 Courses with Most Files Improved



Insights to Take the Next Step Forward on the Journey to Inclusion

The improvement in average Files Score and progress on specific accessibility issues like missing image descriptions represent important first steps in establishing an institutional culture committed to inclusive design. At the same time, universities can use insights from their Institutional Report to initiate efforts to address issues with less progress. For example, a campaign to create an accessible course syllabus or adopt an accessible Word template may help forge progress on the missing headings issue. Given the strong usage of the Course Accessibility Report in the courses with the most files improved, institutions may consider featuring the CAR more prominently in trainings that target a specific issue. The widespread adoption of the Alternative Formats across institutions demonstrates their value to many more students than those with disclosed disabilities. The concentration of downloads around Tagged PDFs and HTML formats also suggests an opportunity to further educate students on the utility of other formats to support their learning needs and study practices.