IMPROVING STUDENT OUTCOMES WITH DIGITAL CONTENT

A campus-wide case study

BibliU

Coventry University

Green Shoots

BACKGROUND & OBJECTIVES

BibliU is a Learning Enablement platform that partners with thousands of publishers to provide affordable access to digital textbooks, monographs, and courseware. Rather than have students depend on sourcing and buying print books for their courses, BibliU gives students day one access to their course content digitally.

To understand the value that the BibliU platform is providing to its users, BibliU commissioned independent research company Green Shoots to conduct an impact study to measure the impact that usage of the BibliU platform has in terms of improving academic performance.

BibliU partnered with Coventry University to enable this study. Coventry University was an early adopter of BibliU and leverages BibliU to make digital content available to its 30,000 students.

In support of this study, Coventry University provided access to anonymised data about student content usage and outcomes.

BIBLIU IMPROVES ACADEMIC PERFORMANCE

The data available for this analysis indicates that there is a positive relationship between usage of BibliU and improved academic performance.

Students who used BibliU at any point during the 2019/20 academic year achieved a mean module mark which was on average 2.4% points higher than the mean module mark for students who did not use BibliU during the 2019/20 academic year (61.9% vs 59.5% respectively). This represents a 4% increase in academic attainment.

The difference in academic performance increases the more times that a student used BibliU over the course of the academic year. Heavy users of the BibliU platform (students who made 50 or more visits to the BibliU platform over the course of the 2019/20 academic year) achieved a mean module mark that was 4.3% points higher than that achieved by students who did not use the platform (63.8%).

Additionally, there is evidence to suggest that usage of the BibliU features (favourites tagging, referencing, highlighting, downloads, text to speech, and comments) helps to further improve academic performance.

Students who extensively used the extra features (50 times or more) achieved a mean module mark that was on average 2.0% points higher than students who were using BibliU but who had not used the features (63.4% vs 61.4% respectively).

The available data suggests that universities can support their students to achieve improved academic performance by providing wider access to the BibliU platform.

Indeed, students who were assigned more course texts through the platform achieved better academic performance. Students who were assigned 1 text only, on average achieved a mean module mark of 60.3%, while students assigned 3 texts achieved a mean module mark of 62.5%, and this increased to 66.5% for students assigned 4 texts through the platform.

Having seen a positive relationship between usage of the available BibliU features and improved academic performance, institutions should also encourage students to make use of the extra features that are available. While this analysis did not explore the reasons for this positive relationship between usage of the BibliU features and improved academic performance, hypothetically this may be a result of increased engagement with the texts caused by usage of these extra features. This is behaviour that should therefore be encouraged.

INCREASED USE OF BIBLIU CORRELATES WITH IMPROVED PERFORMANCE

Directly comparing usage of BibliU and academic performance shows that there is a positive but weak correlation. This is true whether looking at either number of visits to the BibliU platform (0.12 correlation coefficient) or time spent using the BibliU platform (0.11 correlation coefficient).
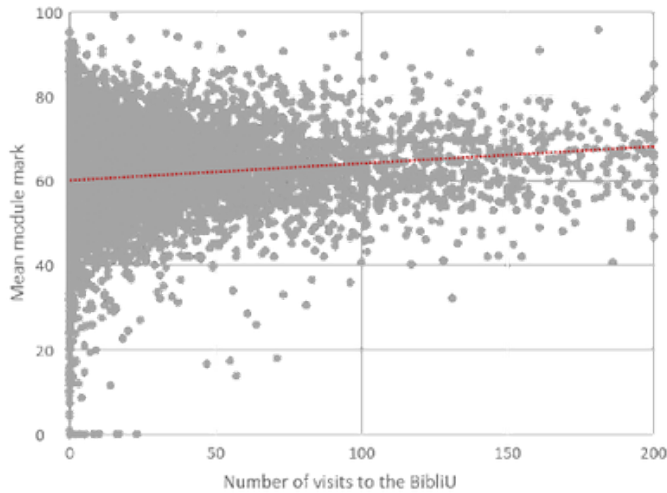

FIG 1. CROSS PLOT SHOWING MEAN MODULE MARK AND NUMBER OF VISITS TO THE BIBLIU PLAIFORM PER STUDENT. BASE SIZE (14,932). NOTE THAT OUTLIERS (DEFINED AS THE TOP AND BOZOM 1%) HAVE BEEN REMOVED FROM THE CROSS PLOT.

FIG 2. CROSS PLOT SHOWING MEAN MODULE MARK AND HOURS SPENT USING THE BIBLIU PLATFORM PER STUDENT. BASE SIZE (14,932). NOTE THAT OUTLIERS (DEFINED AS THE TOP AND BOTTOM 1%) HAVE BEEN REMOVED FROM THE CROSS PLOT.
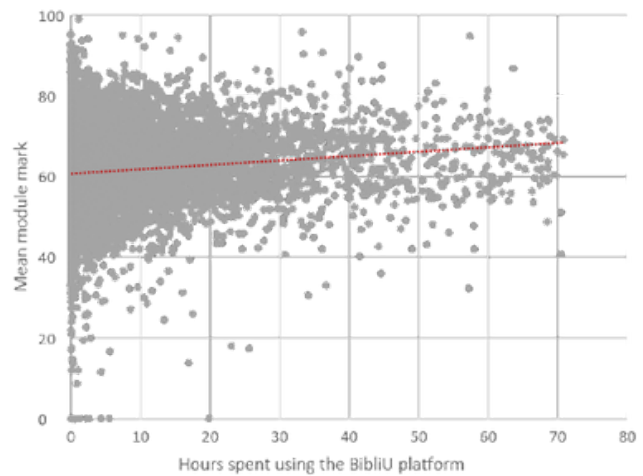
MORE VISITS TO BIBLIU IMPROVE ACADEMIC PERFORMANCE

Although the correlation coefficient scores are weak, directly comparing the mean module mark for BibliU users vs non-users of BibliU quantifies the size of the difference in academic attainment.

Students who have ever used BibliU achieve a mean module mark that is on average 2.4% points higher than students who have never used BibliU, rising from 59.5% to 61.9%.

This improvement in academic performance increases the more times that a student has used BibliU. Students who have visited the platform 50 times or more achieve a mean module mark that is on average 4.8% points higher than students who have never used BibliU.

■ Never Used ■ Have Used
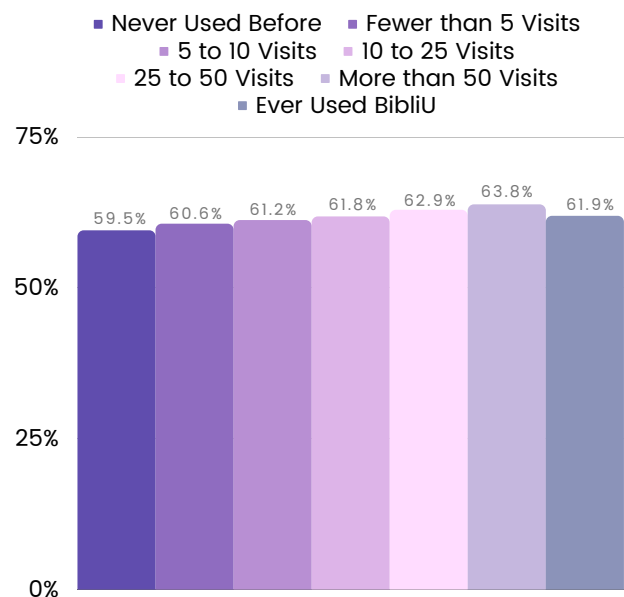
75%

59.5%   61.9%

50%

25%

0%
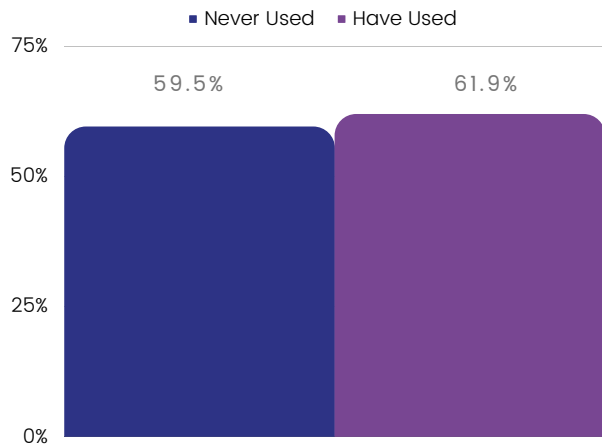
MEAN MODULE MARK BASED ON WHETHER STUDENT HAS EVER USED BIBLIU

FIG 3. MEAN MODULE MARK BASED ON WHETHER OR NOT THE STUDENT HAS USED BIBLIU. BASE SIZE: NEVER USED (6,433), EVER USED BIBLIU (8,928).

MEAN MODULE MARK BASED ON # OF TIMES A STUDENT HAS USED BIBLIU

FIG 4. MEAN MODULE MARK BASED ON THE NUMBER OF TIMES A STUDENT HAS USED BIBLIU. BASE SIZE: NEVER USED (6,433), USED FEWER THAN 5 TIMES (2,496), USED 5 TO 10 TIMES (1,425), USED 10 TO 25 TIMES (2,009), USED 25 TO 50 TIMES (1,386), USED MORE THAN 50 TIMES (1,612).

■ Never Used Before   ■ Fewer than 5 Visits
■ 5 to 10 Visits   ■ 10 to 25 Visits
■ 25 to 50 Visits   ■ More than 50 Visits
■ Ever Used BibliU

75%

59.5% 60.6% 61.2% 61.8% 62.9% 63.8% 61.9%

50%

25%

0%

MORE TIME USING BIBLIU IMPROVES ACADEMIC PERFORMANCE

This upward trend in performance is repeated when looking at the relationship between the amount of time spent using the BibliU platform and academic performance.

Students who spent less than 1 hour using the BibliU platform achieved a mean module mark of 60.7%, while students who used the platform for more than 10 hours achieved a mean module score which was 3% points higher, at 63.7%.

This represents a 7% increase in academic attainment when the mean module mark of students who have never used BibliU (59.5%) is compared to students who used the platform for more than 10 hours (63.7%).

MEAN MODULE MARK BASED ON THE AMOUNT OF TIME A
STUDENT HAS SPENT USING BIBLIU

■ Never Used Before ■ Less than 1 Hour ■ 1 to 3 Hours ■ 3 to 5 Hours ■ 5 to 7 Hours ■ 7 to 10 Hours
■ More than 10 Hours

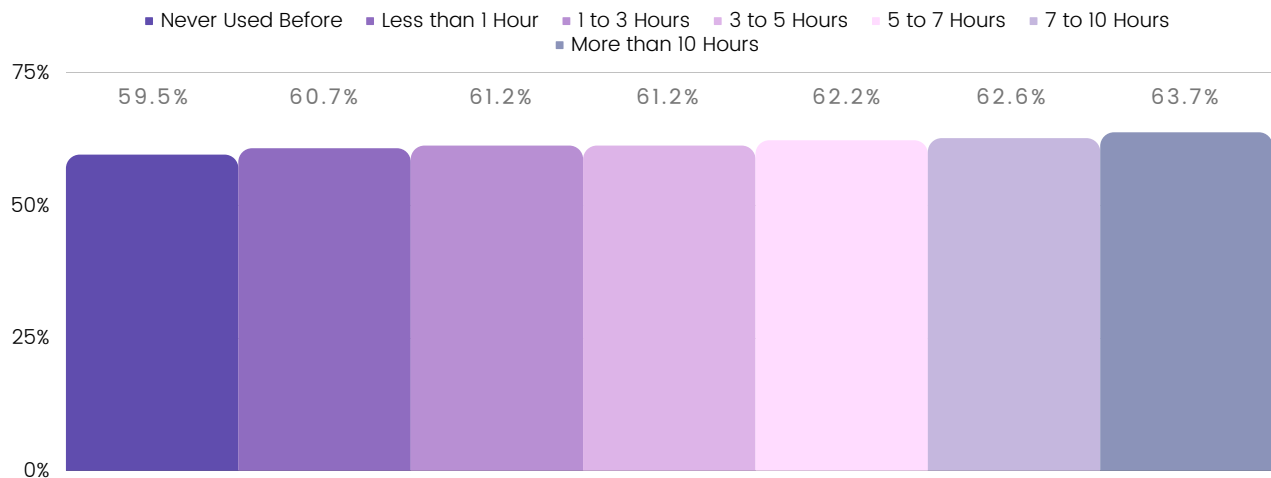| 59.5% | 60.7% | 61.2% | 61.2% | 62.2% | 62.6% | 63.7% |

FIG 5. MEAN MODULE MARK BASED ON THE AMOUNT OF TIME (IN HOURS) A STUDENT
HAS USED BIBLIU.

BASE SIZE: LESS THAN 1 HOUR (2,522), 1 TO 3 HOURS (1,706), 3 TO 5 HOURS (973),
5 TO 7 HOURS (660), 7 TO 10 HOURS (706), MORE THAN 10 HOURS (2,368).

MORE BIBLIU FEATURE USE IMPROVES ACADEMIC PERFORMANCE

It was possible to overlay the data showing usage of the BibliU features to see whether students derive additional benefit from using these.

Students who have previously used the BibliU platform but who have never used any of the extra features achieved a mean module mark of 61.4%. This compares to a mean module mark of 63.4% amongst students who had used the extra features extensively (50 times or more).

This would suggest that usage of the additional features included as part of the BibliU platform corresponds with improved academic performance and students should be encouraged to make use of these features when using BibliU.

MEAN MODULE MARK BASED ON THE NUMBER OF TIMES A STUDENT HAS USED ANY OF THE EXTRA FEATURES

■ Never Used Before　■ Fewer than 10　■ 10 to 25 Times　■ 25 to 50 Times　■ More than 50 Times

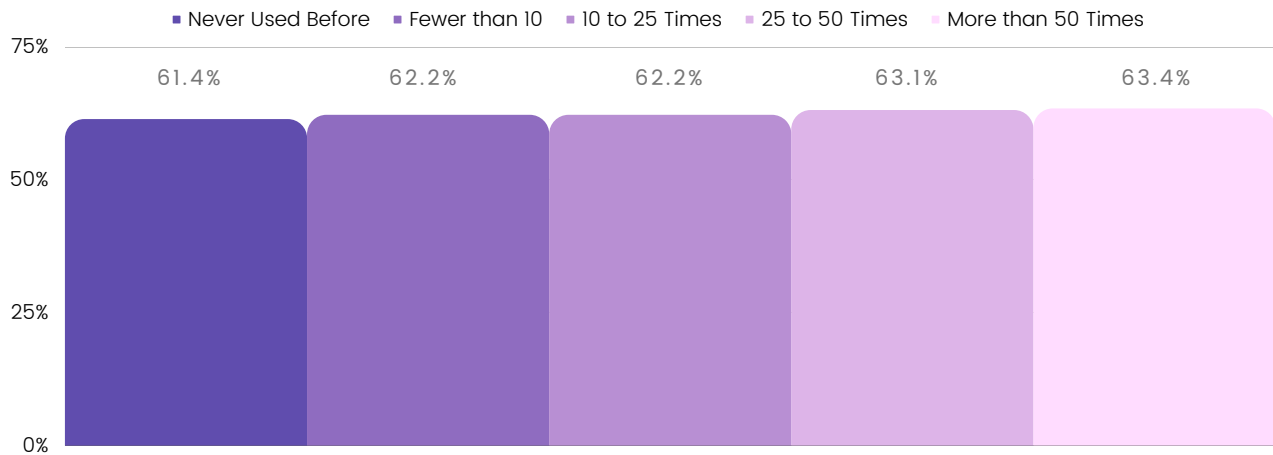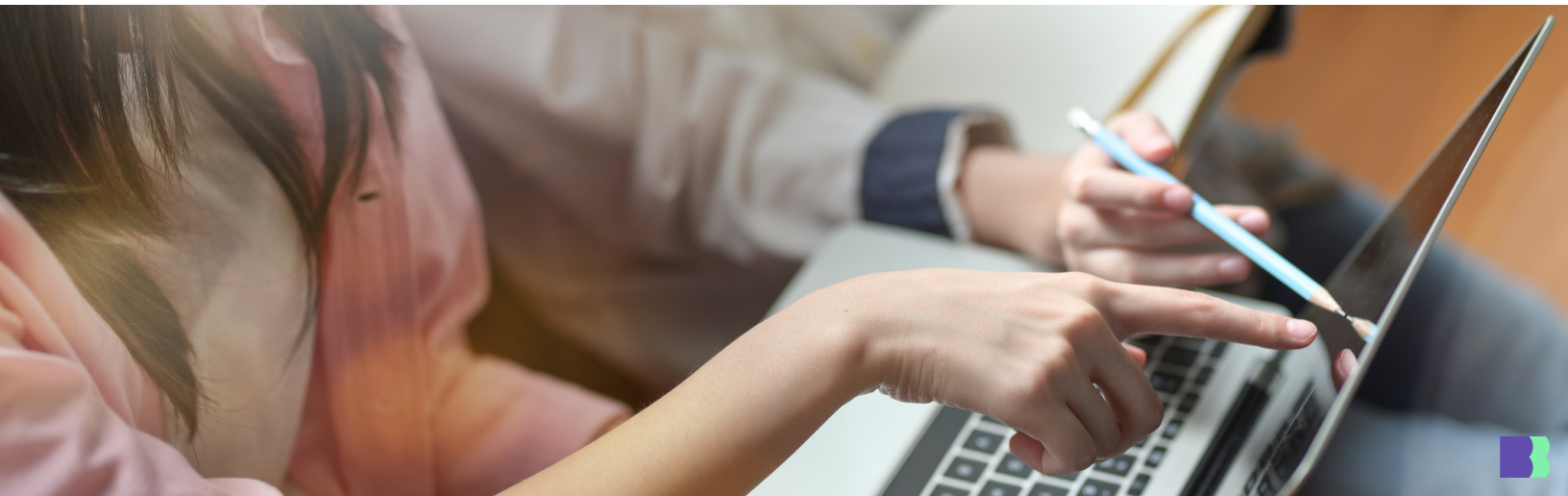|				
61.4%	62.2%	62.2%	63.1%	63.4%

FIG 6. MEAN MODULE MARK BASED ON THE NUMBER OF TIMES THAT STUDENTS HAVE USED THE BIBLIU EXTRA FEATURES.

BASE SIZE: NEVER USED THE EXTRA FEATURES (4,553), USED FEWER THAN 10 TIMES (2,854), USED 10 TO 25 TIMES (783), USED 25 TO 50 TIMES (374), USED MORE THAN 50 TIMES (432).

MORE TEXT ASSIGNMENTS IN BIBLIU IMPROVE ACADEMIC PERFORMANCE

Students included within the dataset covered different schools and courses, each of which assigned a different number of texts within BibliU for their students to read. 37% of students had been assigned just 1 text on BibliU, and only 1% had been assigned 4 texts.

NUMBER OF TEXTS ASSIGNED TO THE STUDENT

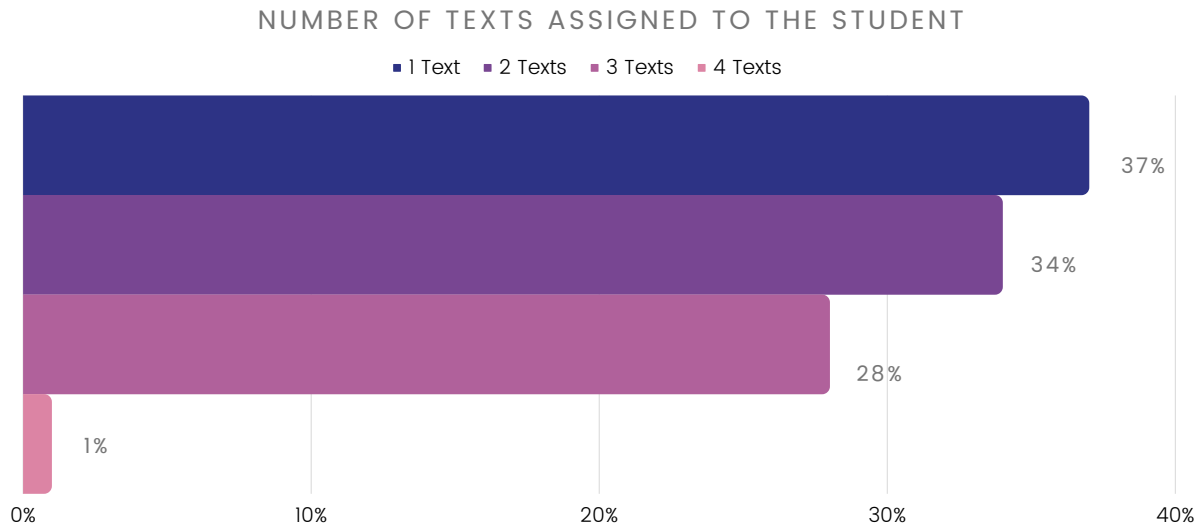■ 1 Text ■ 2 Texts ■ 3 Texts ■ 4 Texts

FIG 7. NUMBER OF BIBLIU TEXTS ASSIGNED TO STUDENTS. BASE SIZE: (15,400)

Interestingly, students who were assigned 1 text on BibliU only as part of their course achieved a mean module mark of 60.3%, while students who were assigned 4 texts within BibliU achieved a mean module mark of 66.5%. This would suggest that departments can help students to achieve a higher module mark by assigning them more texts through the BibliU platform.

This represents an almost 12% increase in academic attainment when the mean module mark of students who have never used BibliU (59.5%) is compared to students who were assigned 4 texts with BibliU (66.5%).

MEAN MODULE MARK BASED ON NUMBER OF TEXTS ASSIGNED
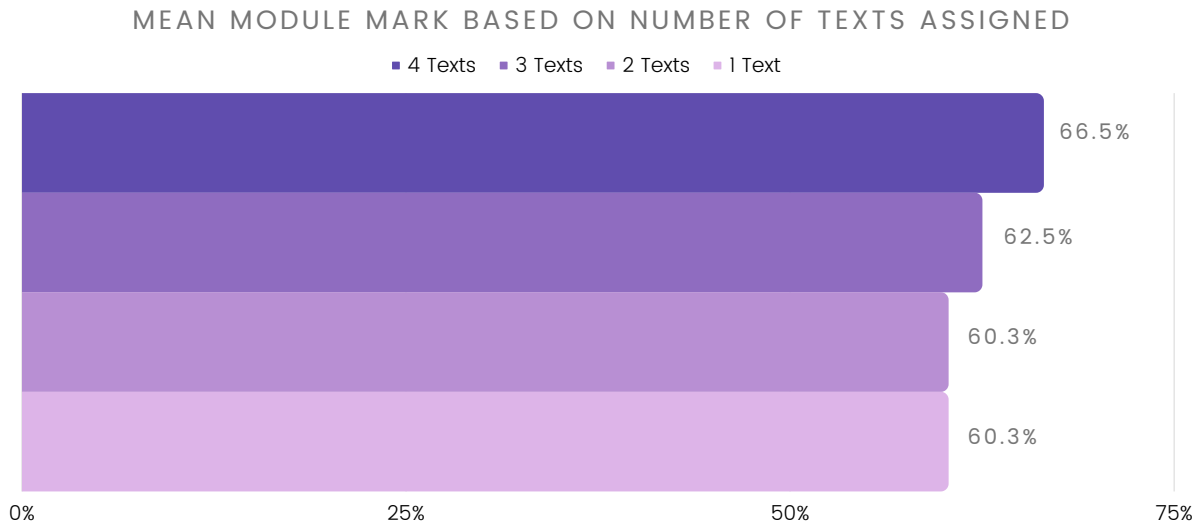
■ 4 Texts ■ 3 Texts ■ 2 Texts ■ 1 Text

FIG 8. MEAN MODULE MARK BASED ON THE NUMBER OF TEXTS THAT STUDENTS HAVE BEEN ASSIGNED. BASE SIZE: 1 TEXT (5,739), 2 TEXTS (5,244), 3 TEXTS (4,350), 4 TEXTS (67).

BIBLIU USAGE BY DEMOGRAPHIC

It is important to note that usage of BibliU varies across demographics and course types. For instance, female students on average visited BibliU twice as many times as male students, spending twice as long on the platform.

Similarly, students studying courses run by Coventry Law School made significantly more visits to BibliU and spent significantly more time on the platform than students of courses run by other schools.

It should be noted that factors are often interconnected. For instance, female students were significantly overrepresented within Coventry Law School relative to male students, which is likely to conflate the usage data as both of these variables correlate with increased usage of BibliU.

When analysing the data, key demographics have been isolated and analysed independently to see whether trends apparent at the total sample level remain true when demographic controls are put in place.

HOW DOES USAGE OF BIBLIU VARY BY DEMOGRAPHIC?

STUDENT INFO		MEAN # OF VISITS	MEAN TIME (HRS)
ALL STUDENTS*		18.1	5.7
GENDER	FEMALE	24.3	7.5
	MALE	11.8	3.7
FEE STATUS	HOME/EU	18.8	5.8
	OVERSEAS	14.9	4.6
	NO FEES FOR THIS COURSE	23.4	8.9
QUALIFICATION STAGE	UNDERGRADUATE YEAR 1	21.5	5.8
	UNDERGRADUATE YEAR 2	17.2	6.0
	UNDERGRADUATE YEAR 3	14.2	4.9
	POSTGRADUATE (TAUGHT)	31.0	10.3
SCHOOL	STRATEGY & LEADERSHIP	25.4	6.9
	PSYCHOLOGY, SOCIAL & BEHAVIORAL SCIENCES	18.9	5.3
	ECONOMICS, FINANCE, & ACCOUNTING	13.4	4.9
	SCHOOL OF HEALTH	20.0	5.3
	ENERGY, CONSTRUCTION & ENVIRONMENT	4.1	0.9
	LIFE SCIENCES	22.2	6.1
	MARKETING & MANAGEMENT	18.7	5.5
	COVENTRY LAW SCHOOL	59.2	25.0
	MEDIA AND PERFORMING ARTS	13.2	4.3
	MECHANICAL, AEROSPACE & AUTOMOTIVE	1.9	0.6
	COMPUTING, ELECTRONICS & MATHEMATICS	1.3	0.4
	ART & DESIGN	0.7	0.1
	HUMANITIES	7.1	1.9
	MANAGEMENT & HUMAN RESOURCES	17.0	5.3

FIG 9. NUMBER OF VISITS AND MEAN TIME (IN HOURS) SPENT USING BIBLIU BROKEN DOWN BY KEY DEMOGRAPHIC INFORMATION. BASE SIZE: 15,400.

* 'ALL STUDENTS' REFERS TO ALL STUDENTS IN THE DATASET THAT ENROLLED IN SEPTEMBER OR OCTOBER 2019 AND HAD BEEN ASSIGNED BIBLIU.

WHAT WAS THE DEMOGRAPHIC BREAKDOWN OF STUDENTS IN OUR SAMPLE?

In total, data for **15,400 students** was analysed as part of this impact study. This figure represented all students at Coventry University who had been assigned texts in the BibliU platform and who had enrolled during September or October in the 2019/2020 academic year. For the purposes of this analysis, students sitting in a course where only one text is used were removed from the sample as it was felt this could skew findings. The demographic breakdown is as follows:

- Of this sample, just over half (51%) were female and a little under half (49%) were male. Less than 1% of our sample (0.2%) identified as being neither male nor female.

- With regards to fee status, almost 8 in 10 (77%) were classified as being 'Home / EU' and a fifth (20%) of students were classified as 'Overseas'. Only a very small minority of 2% were classified as paying no fees for their course.
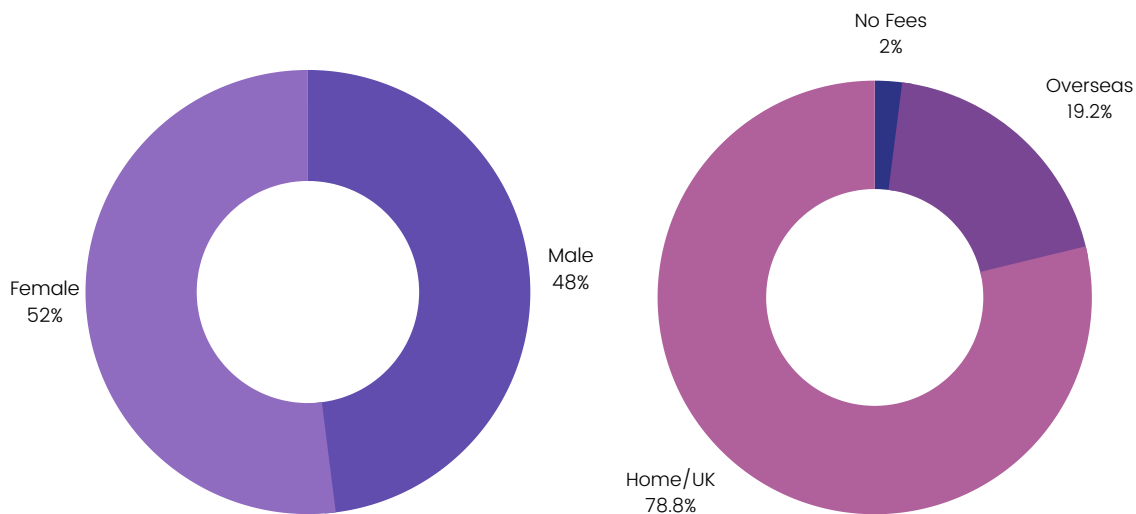

FIG 10. DEMOGRAPHIC BREAKDOWN OF THE SAMPLE.
BASE SIZE: 15,400.

WHAT WAS THE COURSE BREAKDOWN OF STUDENTS IN OUR SAMPLE?

The vast majority of the sample (98%) were working towards an undergraduate qualification, with a roughly even split between those in their first and second year – 35% and 34% respectively. A little over a quarter (28%) of our sample were in the third year of their undergraduate degree.

Of the various schools at Coventry University, those with the highest representation in the sample were 'Strategy and Leadership', 'Psychology, Social and Behavioural Sciences', 'Economics, Finance and Accounting', and 'School of Health', each accounting for over 10% of student entries.

METHODOLOGY: WHAT DID WE DO?

A range of possible methodologies were considered for the purposes of this impact study, with the chosen methodology involving analysing existing product usage and academic performance data held by BibliU and their partner institution, Coventry University.

As a digital platform, BibliU gathers and stores a range of data relating to product usage, including:

- The number of visits a student has made to the BibliU platform
- The total amount of time (in hours) a student has spent using the BibliU platform
- The average reading session length (in minutes)
- The number of times that a student has used key platform features (including download functionality, favourites tagging, text highlighting, commenting functionality, text to speech functionality, and references).

As part of their usual business practices, Coventry University gathers and stores a range of student data relating to academic performance and personal attributes and characteristics. These include:

- Basic course information for each student (Faculty, School, Course, Course Title, Course Stage, Qualification Aim)
- Personal attributes and characteristics (Fee status, Gender, Income decile, distance to campus)
- Academic performance (total modules with a mark, mean module mark, classification of mean module mark).

Combining these two data sets makes it possible to create a single student view, allowing us to understand whether there is a relationship between usage of BibliU and academic performance.

HOW WERE THE TWO DATASETS MERGED?

Merging the two datasets required a common datapoint held by both BibliU and Coventry University. For the purposes of this process, the common datapoint was student email address.

To ensure data security the following process was adopted:

1. BibliU created a raw data file containing the necessary product usage data. This file was then encrypted and sent to Coventry University.
2. Coventry University created a raw data file containing the necessary academic performance and personal attributes and characteristics data.
3. Coventry University merged the two raw data files to create one complete record for each student.
4. Coventry University then anonymised the data file by deleting all personally identifiable information.
5. The anonymised data file was then encrypted and shared with BibliU and Green Shoots to enable this analysis.

Would you like to learn how BibliU can help achieve your goals?

Book a demo with our representative today!

BOOK A DEMO

... or learn more about BibliU