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Stone, Graham, Pattern, David and Ramsden, Bryony

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Library Impact Data Project

Graham Stone, Bryony Ramsden and Dave Pattern

Graham Stone
Information Resources Manager
University of Huddersfield
g.stone@hud.ac.uk

Dave Pattern
Library Systems Manager
University of Huddersfield
d.c.pattern@hud.ac.uk

Bryony Ramsden
Subject Librarian
University of Huddersfield
b.j.ramsden@hud.ac.uk

In February 2011 the University of Huddersfield along with 7 partners; University of Bradford; De Montfort University; University of Exeter; University of Lincoln; Liverpool John Moores University; University of Salford and Teesside University successfully bid and were awarded JISC funding through the Activity Data programme to investigate the hypothesis that:

“There is a statistically significant correlation across a number of universities between library activity data and student attainment”

The Library Impact Data Project (LIDP), which was inspired by earlier work undertaken at Huddersfield (Goodall and Pattern, 2011, White and Stone, 2010), aimed to analyse users' actions with regards to library usage and then linking those to final degree award. By identifying a positive correlation in this data those subject areas or courses which exhibit high usage of library resources can be used as models of good practice.

Data Requirements

Table 1 shows the list of requirements the project asked of its collaborators.

Academic year of graduation	e.g. 2009/10
Course title	Software Development
Length of course in years	3
Type of course	post grad
Grade achieved	2:1
School/academic department	School of Computing & Maths
Number of items borrowed from library either the total number borrowed by that student or separate values for each academic year	e.g. 50 items during the 3 years of the course 11 items in 2007/8, 16 in 2008/9, 23 in 2009/10
Number of visits to the library either the total number of visits by that student or separate values for each academic	

year	
Number of logins to e-resources (or some other measure of e-resource usage) either the total number of logins made by that student or separate values for each academic year	

Table 1: Data requirements

Results

Due to limitations on what data format was available, testing methods took some time to refine. While usage data was continuous, the final mark was not, and took the form of degree format rather than a percentage score. As a result, following several attempts using various methods, the Kruskal-Wallis (KW) test was selected, in combination with the Mann Whitney U test (MW). These tests combined analyse differences between groups of data, the former checking for differences between groups overall without specifying where differences lie, the latter allowing for several tests to be conducted analysing differences between specific groups. The size of the difference can then be measured using a simple manual calculation.

Data analysis indicated that there were differences between degree results in terms of using electronic resources and borrowing items from the library. Effect size, when at a significant level, indicated that the higher degree had higher usage than the lower degree, albeit to a varying extent.

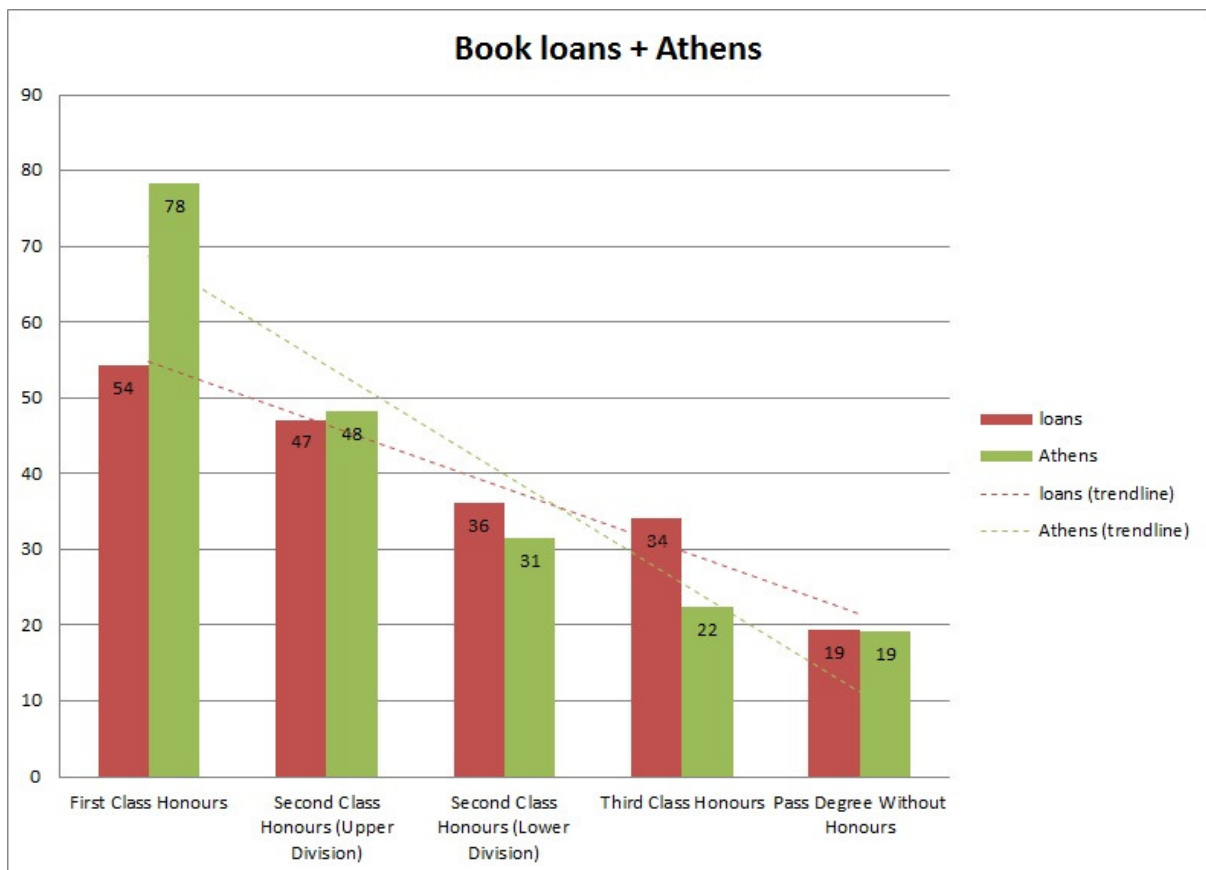


Figure 1: Example of book loans and Athens logins vs. degree classification

Figure 1 shows a typical result from one of the project partners based on averages. Our research supports the visual representation of variance between degree results and usage, and does so across a range of data e.g. subjects, which supports our hypothesis that library usage does impact on students' attainment.

The project has successfully demonstrated that this is a statistically significant relationship between student attainment and two of the indicators; e-resources use and book borrowing statistics. This relationship has been shown to be true across all eight partners in the project that provided data for these indicators.

One area where a statistical significance was not found was for library gate entry data. However, it does look like there is a difference between those students that were awarded a 1st and 3rd. This can be explained in part by the nature of use of the library. Students enter the library building for many reasons as they will commonly contain group study facilities, lecture theatres, cafes and social spaces and student services. A student is just as likely to be entering the building for these reasons which may or may not have an impact on final grade than for 'study'.

It is critical at this stage to reiterate that the results and any conclusions drawn from the project are not indicators that library usage and student attainment is a casual relationship. The project is keen to note that other factors will have an influence on students' achievements.

Project outputs

After consultation with the partners the release of an anonymised set of data has been agreed. This data has now been released under an Open Data licence (<http://eprints.hud.ac.uk/11543/>). The data has been made available in Excel, comma separated and plain text and contains final grade and library usage figures for 33,074 students studying undergraduate degrees at the eight partner universities. In order to ensure complete anonymity for the partners they are listed as LIB1 to LIB8. The names of the schools and/or departments at each university have been replaced by randomly generated IDs and some courses have been 'generalised' to remove elements that may identify the institution.

The final output from the project was a toolkit (<http://eprints.hud.ac.uk/11571/>), which provides instructions for libraries on how to extract their own data in order to benchmark against the data described above. The toolkit discusses the extraction of the data and gives tips for statistical analysis and suggestions for further investigation.

All outputs from the project, including themed blog posts, conference papers and journal articles can be found via the LIDP blog (<http://library.hud.ac.uk/blogs/projects/lidp/>). The project was also referenced in the SCONUL response to the Higher Education White Paper "Higher Education: Students at the Heart of the System", (http://www.sconul.ac.uk/news/he_whitepaper/hewhitepaper_response.doc)

Lessons learned

During the project a number of lessons were learned. A major issue for one of the partners was the retention of data within the University. It is vital for any project that wishes to use data for these purposes to include forward planning for the retention of data. In order to achieve this, all internal systems and departments need to communicate with each other. Data should never be deleted without first checking the implications of doing this on other departments within the university. Partners found that this was often based on arbitrary decisions rather than university policy.

When examining e-resources usage data, the project has always noted that the way this data is collected may be questionable, however, it is the only comparable data that can be collected and traced back to an individual. Although data from COUNTER reports is far more reliable, there is no way that this data can be attributed to an individual.

Further research

The original idea for the Library Impact Data Project came from the non/low use work at Huddersfield. As such, it was always an aim of LIDP and the team at Huddersfield to return to this work.

In November 2011 the University of Huddersfield was approached by JISC to submit a proposal for an extension to the original project. In December 2011 funding was approved to take this forward into phase II of the project, which will run from January 2012 to July 2012. Thus the aim of phase II is to build upon the work carried out in phase I and will include additional relevant data, which will be added to Huddersfield's data in order to enrich the quality of the data for libraries in order to investigate possible causal links such as:

- Final % mark rather than grade to check for a correlation with other variables
- End of year results as a predictor to final grades
- UCAS entry points
- Gender
- Age
- Ethnicity
- Declared disability
- Student retention
 - The original project only looked at completing students
- VLE usage
- Reading list use

Phase II will also study the impact of in house projects, partly inspired by phase I of the project, such as MyReading (<http://library.hud.ac.uk/blogs/projects/myreading/>), Lemon Tree (<http://library.hud.ac.uk/blogs/projects/lemontree>) and the Roving Librarian project.

The enriched data will also be used to provide better management information in order to refine decision making and to show the value added impact of libraries.

Phase II will revisit the original Huddersfield non/low usage project by investigating a number of case studies for courses exhibiting non/low usage of library resources in order to add qualitative data to better understand student behaviour, this will also incorporate work already carried out in the University of Huddersfield Business School by Anchor et. al.

(2011). It is hoped that this will allow better decision making over the most effective allocation of library resources to meet student needs.

JISC have also asked the project to conduct a feasibility study on the viability of a national shared service that involves collection and analysis of library impact data for all UK HE libraries in order to ease the process of data collection and allow benchmarking to be undertaken by a central clearing house. This will include a workshop with SCONUL and RLUK to discuss opportunities with usage data and possibilities for shared services.

Finally the project will build on the toolkit by offering a number of training courses and podcasts aimed at other librarians in UK HE looking at how to make the most of library data.

The project will also liaise with other projects, such as those being carried out at the University of Wollongong (Jantti, 2011) and by Megan Oakleaf for the ARCL (2010) in order to benchmark the findings.

The LIDP blog (<http://library.hud.ac.uk/blogs/projects/lidp/>) and Twitter hashtag, #lidp, will continue to be used in phase II of the project and we look forward to sharing our findings with colleagues during 2012.

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