

# Curating big and small data

## Possibilities for understanding buildings in use

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#buildingsinuse | @hiral\_patel\_

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**Buildings are increasingly becoming data-rich.**

# POLICY CONTEXT

Government action to support construction by providing funding for “Digital technologies, including Building Information Modelling (BIM), sensors, data analytics and smart systems technologies and the Information Management Landscape (IML); which will increase the efficiency of construction techniques”. (p.13)

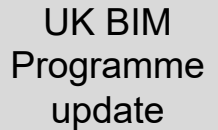
“...benchmark the performance of assets so that clients and the supply chain have access to more data in order to deliver better performing assets” (p.32)

Source: HM Government (2018) Industrial Strategy: Construction sector deal. Available at:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/731871/construction-sector-deal-print-single.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/731871/construction-sector-deal-print-single.pdf)

(Accessed: 12 July 2018).

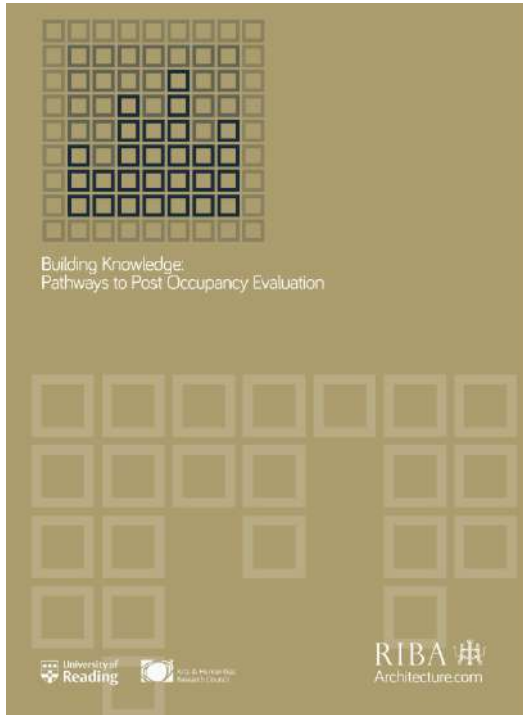
Understand how the built environment can improve citizens' quality of life and use that information to drive the design and build of our economic and social infrastructure and the operation and integration of the services they deliver.



**Building performance becomes key!**

**However, building performance evaluations are not common.**

# ARCHITECTURE PROFESSION'S KNOWLEDGE-BASE



Post occupancy evaluation (POE) is one approach to study building performance.

“9% of chartered architectural practices offering POE to clients, and none generating revenues from POE services.”

Hay, R. et al. (2017) ‘Post-occupancy evaluation in architecture: experiences and perspectives from UK practice’, Building Research & Information. Taylor & Francis, 46(6), pp. 698–710.

RIBA and Hay, R., S. Bradbury, D. Dixon, K. Martindale, F. Samuel, A. Tait (2016), *Pathways to POE*, Value of Architects, University of Reading, RIBA. <https://www.architecture.com/-/media/gathercontent/post-occupancy-evaluation/additional-documents/buildingknowledgepathwaystopoe.pdf>

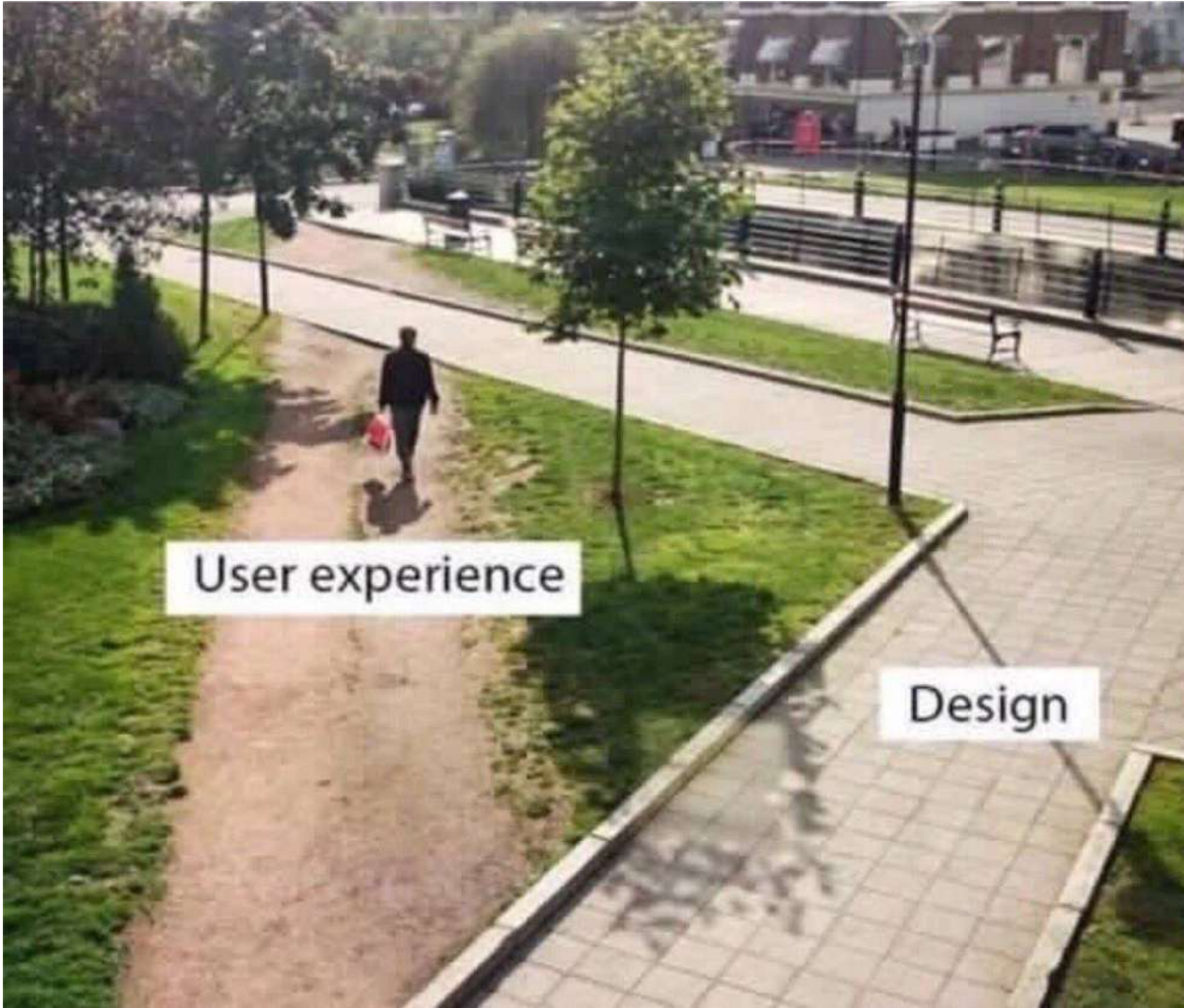
# PROCUREMENT & PROFESSIONAL INDEMNITY INSURANCE

“Professionals are unlikely to offer POE, as part of the standard services delivered during the procurement process, unless issues of liability can be satisfactorily resolved.”

Cooper, I (2001), Post-occupancy evaluation: where are you? Building Research & Information 29:2, 158-163.

“Project Insurance taken out by the client for everyone involved in a project, as is the norm in Germany, provides more cost effective insurance cover ... At a stroke it overcomes the litigious basis of the construction industry.”

Haenlein; H. and Patel; H. (2017) ‘Design-led procurement: linking design process with procurement of construction projects’; in Hay; R. and Samuel; F. (eds) Professional Practices in the Built Environment Conference 27-28 April 2017. Reading; UK.



# BUILDINGS IN USE

Rethink what a building is!

Fundamental difference:  
buildings as not fixed objects,  
but emerging in user practices.

Patel, H. and Tutt, D. (2018) "This building is never complete": Studying adaptations of a library building over time', in Sage, D. and Vitry, C. (eds) *Societies under Construction*. Palgrave Macmillan, pp. 51–85.



## ARCOM Conferences

**35th Annual Conference – Leeds, UK**  
**2-4 September 2019**

### Track 1: Problematising building performance

**Lead:** *Hiral Patel, University of Reading* ([hiral.patel@live.in](mailto:hiral.patel@live.in));  
*Stuart Green, University of Reading*

Construction management research is too often orientated towards the delivery of built assets as fixed objects. The sustainability agenda triggered a renewed interest in the performance concept of built assets (Brochner *et al.*, 1999). Similarly, building performance evaluation gained momentum in 1990s following PROBE studies (Cohen *et al.*, 2001). Building performance has a long and chequered history (Bordass and Leaman, 2015). There have been many false dawns for building performance professionally. The history of building performance is also characterised by colonisation of different academic disciplines such as environmental psychology, sociology, architecture and anthropology to name a few (Mallory-Hill *et al.*, 2012). The debates around building performance tend to be forgotten, only to be re-discovered by each subsequent generation (Markus, 2001).

In this track, we call for a critical review of current academic and industry knowledge around building performance. We seek to learn from the past in the hope of securing better futures. Some indicative themes for this track include:

- *Forgotten stories of building performance:* Through this theme we would aim to gather stories of unsung heroes who promoted building performance, only to be forgotten. One such example is the story of Building Performance Research Unit (Markus *et al.*, 1972). We also welcome histories of building performance evaluation in different institutional and geographical contexts.
- *Re-claiming building performance from its technocratic avatar:* The current form of building performance is heavily biased towards technological determinism. The UK Government's Construction Sector Deal (Department for Business, Energy and Industrial Strategy, 2018) is the most recent example of the way in which policy makers seemingly remain wedded to such a worldview. What are the blind-spots of current building performance concepts and methods? What are alternative conceptualisations of building performance? What can methodological diversity offer in enriching our understanding of building performance?
- *Theoretical devices or lack thereof:* What kind of theoretical devices do we need if we are to imagine building performance in a richer and more dynamic manner? How can we make a shift away from thinking of built assets as fixed objects, and towards thinking of built assets as always in flux (Latour and Yaneva, 2008; Patel and Tutt, 2018)?
- *Doubling the criteria:* The currently accepted building performance criteria are far from innocent. They are value-laden and biased. Hay *et al.* (2017) have indicated an appetite within architectural practice for articulating measures that go beyond energy efficiency. Are new iterations of metrics, data and data use, the way

# NOT YOUR USUAL POE!

- Performance beyond technical aspects
- How people interact with buildings?

<http://www.arcom.ac.uk/conf-next-track-details.php?t=21>

# BRIDGING ACADEMIC DISCIPLINES



- Environmental psychology
- Sociology
- Architecture
- Anthropology

And I will add

- Computer science

Mallory-Hill, S., Preiser, W. F. E. and Watson, C. (2012) Introduction to building performance evaluation: Milestones in evolution. In: S. Mallory-Hill, W. F. E. Preiser and C. Watson (Eds.) *Enhancing Building Performance*. Chichester: Wiley-Blackwell, 3-18.

**Studying buildings in use require**

**data**

**of different kinds**

# WHITEKNIGHTS LIBRARY STUDYING ITS USE OVER TIME



1960s

Source: University of Reading Special Collections, MS5305  
(University History)



2014



# RECENT ELECTRICITY DATA

1	Library electricity consumption																
2																	
3	Date	Day	Total daily	00:30	01:00	01:30	02:00	02:30	03:00	03:30	04:00	04:30	05:00	05:30	06:00	06:30	07:00
4	13/02/2017	Mon	2,454	43.201	41.424	42.023	37.877	37.051	37.789	40.129	37.713	36.691	37.375	37.094	38.707	43.982	44.434
5	14/02/2017	Tue	2,370	46.199	43.807	42.625	40.671	41.074	39.898	40.387	39.037	38.281	35.998	37.207	41.406	42.697	46.314
6	15/02/2017	Wed	2,224	37.895	33.838	32.377	32.512	30.82	31.182	29.24	27.641	29.066	28.65	28.121	31.752	35.07	38.297
7	16/02/2017	Thu	2,286	40.818	42.41	38.654	40.729	37.563	36.252	36.346	35.711	34	35.852	36.223	40.453	41.652	44.227
8	17/02/2017	Fri	2,158	40.527	41.689	39.896	39.978	39.377	36.998	37.459	36.094	36.514	34.383	36.488	36.297	39.799	44.951
9	18/02/2017	Sat	1,770	33.567	34.623	33.695	34.35	32.461	29.65	33.545	31.338	30.701	28.775	31.477	30.707	33.459	31.492
10	19/02/2017	Sun	1,675	17.475	17.587	17.865	17.82	17.869	17.805	17.178	18.043	17.561	17.792	17.66	17.592	18.41	18.813
11	20/02/2017	Mon	2,201	37.528	35.602	35.615	33.314	32.879	30.254	31.039	32.701	30.107	27.422	29.164	30.715	34.66	36.758
12	21/02/2017	Tue	2,205	43.727	40.021	41.404	38.812	37.559	36.811	34.15	33.938	35.998	32.613	34.859	36.553	40.148	41.266
13	22/02/2017	Wed	2,145	36.018	32.794	32.385	29.936	29.148	28.524	26.305	25.93	25.1	25.855	26.184	30.594	34.156	33.662
14	23/02/2017	Thu	2,300	40.506	39.805	37.836	37.826	37.477	35.303	33.867	32.289	31.602	32.313	32.387	34.521	40.473	41.063
15	24/02/2017	Fri	2,276	41.004	40.363	39.041	39.814	40.164	37.545	37.338	36.418	34.66	33.773	35.734	37.551	40.027	41.311
16	25/02/2017	Sat	1,815	32.729	33.852	31.166	30.299	28.117	29.789	28.184	33.141	28.047	27.313	29.963	29.26	30.301	33.545
17	26/02/2017	Sun	1,722	16.332	16.457	16.135	16.471	16.342	16.23	16.195	16.045	15.902	16.133	16.457	16.234	18.314	18.881
18	27/02/2017	Mon	2,377	37.373	33.75	35.613	34.348	33.109	31.645	33.822	32.209	28.061	28.842	28.707	31.681	36.039	39.168
19	28/02/2017	Tue	2,434	45.656	42.771	41.945	41.775	40.553	39.641	37.996	35.553	34.922	33.447	34.898	36.598	45.447	47.885
20	01/03/2017	Wed	2,372	39.498	38.314	38.027	35.25	33.037	33.498	34.273	34.879	34.021	33.092	33.037	32.824	35.727	40.863
21	02/03/2017	Thu	2,406	43.686	41.887	41.127	39.186	39.57	37.318	37.83	37.02	33.547	34.098	35.438	39.283	43.049	45.225
22	03/03/2017	Fri	2,295	42.685	42.156	41.451	42.273	40.771	36.479	36.465	35.789	35.426	35.158	36.086	35.998	38.82	44.121
23	04/03/2017	Sat	1,830	34.881	35.67	34.186	33.85	33.82	30.594	29.732	34.191	29.5	26.453	27.727	28.941	31.229	31.975
24	05/03/2017	Sun	1,705	16.839	17.146	17.029	16.74	16.909	16.77	16.941	16.982	16.839	16.808	16.704	16.715	18.916	19.828
25	06/03/2017	Mon	2,325	38.326	33.451	36.854	32.564	32.779	31.477	34.826	35.209	34.006	31.557	30.266	31.193	35.965	38.012
26	07/03/2017	Tue	2,327	42.998	41.158	39.842	37.994	36.322	36.901	34.846	34.899	33.229	32.459	33.174	36.959	41.902	44.824
27	08/03/2017	Wed	2,212	37.002	35.822	32.967	32.137	32.531	31.768	30.854	27.232	28.582	26.271	27.773	28.906	33.357	37.52
28	09/03/2017	Thu	2,237	44.005	41.137	42.498	39.912	39.316	37.027	36.898	39.531	34.143	36.691	35.385	36.108	38.739	42.176
29	10/03/2017	Fri	2,167	39.508	38.35	38.74	36.678	36.529	34.211	35.258	37.361	34.186	34.014	33.088	34.916	40.131	43.242
30	11/03/2017	Sat	1,649	33.955	32.944	33.922	32.379	32.339	29.344	27.412	30.049	27.82	26.095	25.719	25.17	26.846	25.254
31	12/03/2017	Sun	1,594	13.818	13.717	13.814	13.508	13.865	13.91	13.754	13.648	14.061	13.953	14.088	13.906	16.275	16.963
32	13/03/2017	Mon	2,214	36.835	33.992	33.379	32.398	30.973	30.199	29.771	30.794	30.453	29.506	29.131	30.278	34.903	36.559
33	14/03/2017	Tue	2,239	43.725	40.666	38.717	39.002	37.775	36.703	33.756	35.043	32.105	31.326	31.404	35.252	38.482	43.35
34	15/03/2017	Wed	2,182	37.531	37.398	34.84	34.424	33.777	32.508	31.889	29.934	29.573	29.719	27.252	31.504	34.097	37.103
35	16/03/2017	Thu	2,377	42.027	39.645	38.598	37.928	36.098	36.68	34.254	33.674	33.35	31.65	33.322	33.977	39.244	42.261
36	17/03/2017	Fri	2,369	41.141	39.307	39.809	39.42	39.139	37.271	36.98	35.852	36.697	39.088	35.775	34.879	39.998	41.078
37	18/03/2017	Sat	1,833	40.752	40.41	40.982	36.406	36.271	37.076	35.52	36.217	35.139	33.432	33.857	32.445	34.102	34.258
38	19/03/2017	Sun	1,648	14.939	15.531	15.18	15.311	15.149	15.367	15.204	15.178	15.4	15.293	15.348	15.178	17.619	17.629
39	20/03/2017	Mon	2,329	36.885	37.107	35.961	34.209	34.912	32.074	34.296	33.91	31.668	29.832	28.293	30.213	34.99	35.689
40	21/03/2017	Tue	2,409	45.213	42.808	42.271	40.531	38.814	39.037	38.552	40.193	37.194	35.548	37.303	39.111	42.707	44.594
41	22/03/2017	Wed	2,511	44.83	44.559	43.35	41.748	40.773	40.182	39.324	38.037	36.076	37.561	36.598	39.484	42.117	46.549
42	23/03/2017	Thu	2,499	45.52	44.441	46.277	44.563	43.035	41.318	41.244	42.482	39.335	40.594	40.715	41.773	44.82	47.143
43	24/03/2017	Fri	2,383	45.496	44.35	44.412	43.6	42.369	42.674	43.42	43.32	41.555	41.961	41.045	41.961	45.357	45.875
44	25/03/2017	Sat	1,731	37.4	38	38.369	39.326	36.482	35.348	34.409	37.754	33.488	32.672	33.943	34.121	34.027	39.404

- Half-hourly data

# CONNECTING PAST & PRESENT

## ENERGY CONSUMPTION

MONTH	LIBRARY		MATHEMATICS		P.B. & Z.		PRIMER		PHYSICS	
	1976/75	1976/77	1976/76	1976/77	1976/75	1976/77	1976/76	1976/77	1976/76	1976/77
OCT.	35,600	39,390	7,723	8,396	77,350	80,980	11,132	12,484	34,040	32,810
NOV.	44,400	43,990	9,222	8,124	87,650	93,740	15,053	15,267	41,970	38,390
DEC.	39,890	33,800	8,905	9,971	92,360	98,020	11,068	10,751	39,650	33,690
JAN.	39,550	40,500	8,308	8,670	74,270	94,230	12,759	13,809	38,430	33,700
FEB.	42,520	39,040	9,252	7,597	82,340	91,160	13,485	13,797	42,250	32,310
MAR.	51,610	36,810	9,121	7,475	88,740	90,630	14,069	15,608	37,570	34,450
APR.	30,520	31,240	6,313	6,761	69,330	74,370	8,774	9,114	25,650	22,860
MAY	31,380	37,470	5,752	7,435	59,080	75,600	6,272	8,708	28,080	31,150
JUNE	33,411		10,419		71,921		7,606		33,808	
JULY	29,629		9,241		63,779		6,745		29,992	
AUG.	26,890		8,052		72,640		8,863		26,080	
SEPT.	30,230		9,238		76,230		9,209		29,830	
TOTAL:	435,030		102,426		916,310		125,035		407,340	
%	5.4		1.3		11.4		1.6		5.1	
Floor 2 Area m <sup>2</sup>	7,652		1,896		7,070		3,371		5,540	
kWh/m <sup>2</sup>	57		54		130		37		74	

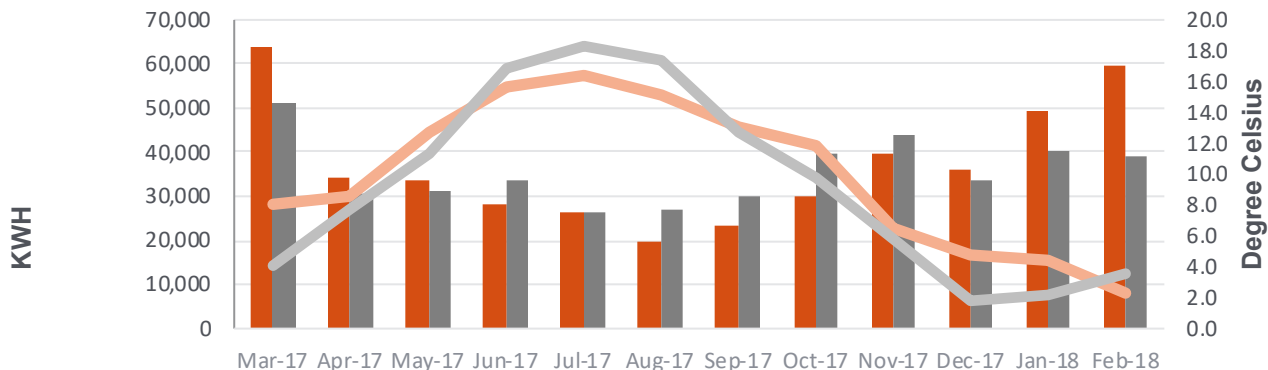
NOTES: 1. % figure indicates the % of the total Whitknights supply taken by this building.  
2. Floor Area indicates GROSS floor area.

- Monthly data
- Prior to 1984 side extension
- Not many computing activities impacting electricity load
- Probably before any building energy management system was involved

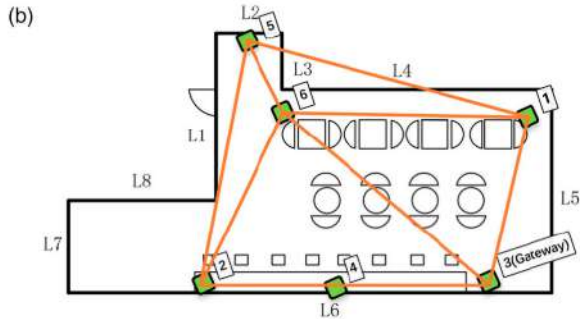
# CONNECTING PAST AND PRESENT

## ENERGY CONSUMPTION

### Library building - Energy consumption

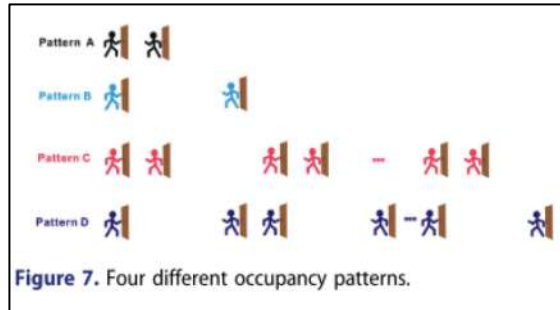


	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18
Electricity consumption 2017-18	63,792	34171	33,409	28,216	26067	19612	23211	30240	39,913	36,225	49364	59,321
Electricity Consumption 1976-77	51,010	30,520	31,380	33,411	26,629	26,890	30,230	39,390	43,990	33,800	40,500	39,040
Mean monthly average temperature 2017-18	8.0	8.6	12.8	15.7	16.4	15.2	13.0	11.9	6.5	4.7	4.4	2.3
Mean monthly average temperature 1976-77	4.00	7.70	11.40	16.80	18.30	17.40	12.80	9.80	5.80	1.80	2.10	3.60



# WI-FI-BASED ANALYSIS

- WI-FI detection nodes
- Algorithms to analyse patterns
- High speed of data collection



Wang, Y. and Shao, L. (2018) 'Understanding occupancy and user behaviour through Wi-Fi-based indoor positioning', *Building Research and Information*. Taylor & Francis, 46(7), pp. 725–737.

**Figure 2.** (a) Measurement sensor (above) and (b) nodes placement plan (below).





Source -University Library news  
<https://blogs.reading.ac.uk/librarynews/2018/10/library-gates-activated-remember-your-campus-card/>



# SMALL DATA

“When I enter someone’s home, the first thing I do is gather as much rational, observable data as I can. I make notes, take hundreds of photos, shoot video after video. The smallest detail, or gesture may become the key...”

“Most illuminating to me is combing small data *with* big data...”

# CONNECTING PAST AND PRESENT

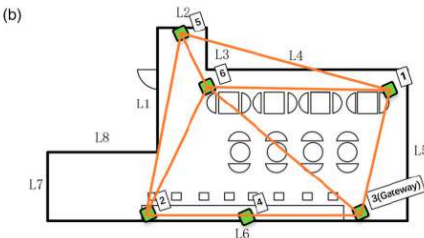
- 307 responses
- Records time of entering, time of leaving and the purpose of the visit
- Patterns:
  - Longest duration noted is that of 13 hours and 40 minutes
  - Study for 7-8 hours with tea breaks and lunch break
  - Study for 3-4 hours with 45 minutes break

Library Management Research Unit University Library, Cambridge SURVEY OF UNIVERSITY LIBRARY USE BY UNDERGRADUATES		University library stamp 12 Library University of Reading
<p>To provide the best service for the greatest number in the future, university libraries need information on how they are being used now. This Research Unit is today carrying out an investigation at selected universities into the use which is made of libraries by undergraduates.</p> <p>You are invited to provide the information requested below each time you visit the library today and to return the completed form as you leave. You are <u>not</u> asked to sign the form.</p>		For Official Use
1. Time of entering: <u>10:00</u>		A0 A1
2. Sex: <u>M/F</u> (Ring as appropriate)		A2 A3 A4 A5 B6 B7 B8
3. Faculty/School/Department: <u>Faculty of Arts</u> Working for a General/Ordinary, Honours Degree (Ring as appropriate) Main subject(s): <u>Latin &amp; Greek</u>		B9 C10 C11 C12 C13 D14 D15 D16 D17 D18 D19 D20
4. Year of Residence/Study: 1 2 <u>3</u> 4 (Ring as appropriate)		29 28 27
5. Does your main university library provide an introductory talk and/or guided tour to inform students of its facilities? <u>TALK/TOUR/NEITHER</u> (Ring as appropriate)		26 25 24
If one or both of these is provided, did you attend? <u>TALK/TOUR/NEITHER</u> (Ring as appropriate)		23 22
6. Does your main university library provide an instructional or informational leaflet or pamphlet on its facilities? <u>YES/NO</u> (Ring as appropriate)		21 20
If YES, have you read it? YES <u>NO</u> (Ring as appropriate)		19
7. Did you come to this library (tick as appropriate) A <u>✓</u> to look for a book or books whose author(s) and/or title(s) you already knew? B <u>✓</u> to look for a book or books (whose author(s) and title(s) you did <u>not</u> know) on a specific subject related to your course work? C <u>✓</u> to look for books unrelated to your course work? <u>Library</u> D <u>✓</u> for social or other purposes? (please specify: <u>to study</u> )		18 17 16
[IF YOU TICKED A, PLEASE ANSWER QUESTION 7a BELOW; IF B, PLEASE ANSWER QUESTION 7b BELOW]		
7a. How many books were you looking for? (Ring as appropriate) 1 <u>2</u> 3 4 5 more		15 14 13 12 11 10
In looking for these did you <u>first</u> of all a) use the catalogue? YES <u>NO</u> b) go to the shelves? YES <u>NO</u> c) ask the library staff? YES <u>NO</u>		9 8 7 6 5 4
How many of these books did you find? 1 <u>2</u> 3 4 5 more		3 2 1 EO E1 E2

# OCCUPANCY PATTERNS



- What activities did students perform?
- Free text
- Demographic information



- High granularity of data
- Easy data collection once setup
- Time-series data

University Library  
STAND 12

Library Management Research Unit  
University Library, Cambridge

SURVEY OF UNIVERSITY LIBRARY USE  
BY UNDERGRADUATES

To provide the best service for the greatest number in the future, university librarians need information on how they are being used now. This Research Unit is today carrying out an investigation at selected universities into the use which is made of libraries by undergraduates.

You are invited to provide the information requested below each time you visit the library today and to return the completed form as you leave. You are not asked to sign the form.

1. Time of entering: 10:15am

2. Sex: MF (Ring as appropriate)

3. Faculty/School/Department: Faculty of Science  
Working for a General/Ordinary, Honours Degree? (Ring as appropriate)

Main subject(s): Maths, Stats, Comput

4. Year of Residence/Study: 1 2 3 4 (Ring as appropriate)

5. Does your main university library provide an introductory talk and/or guided tour to inform students of its facilities?  
(TALK/TOUR/NEITHER (Ring as appropriate))  
If one or both of these is provided, did you attend?  
(TALK/TOUR/NEITHER (Ring as appropriate))

6. Does your main university library provide an instructional or informational leaflet or pamphlet on its facilities?  
(YES/NO (Ring as appropriate))  
If YES, have you read it? YES( ) NO( ) (Ring as appropriate)

7. Did you come to this library (tick as appropriate)  
A to look for a book or books whose author(s) and/or title(s) you already know?  
B to look for a book or books (whose author(s) and title(s) you did not know) on a specific subject related to your course work?  
C to look for books unrelated to your course work?  
D for social or other purposes? (please specify in other)

IF YOU TICKED A, PLEASE ANSWER QUESTION 7a BELOW; IF B, PLEASE ANSWER QUESTION 7b BELOW

7a. How many books were you looking for? (Ring as appropriate)  
1 2 3 4 5 more  
To looking for these did you first of all  
a) use the catalogue? YES/NO  
b) go to the shelves? YES/NO  
c) ask the library staff? YES/NO  
How many of these books did you find?  
1 2 3 4 5 more

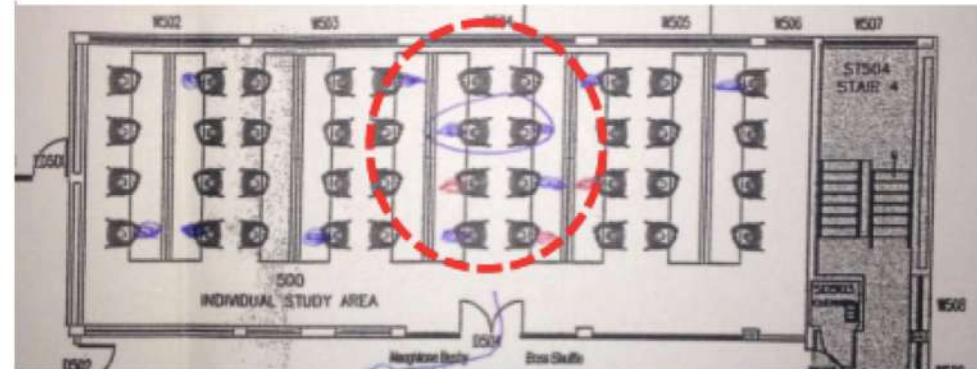
For Official Use

AO A1  
A2 A3 A4 A5  
B6 B7 B8  
B9 C10  
C11 C12 C13  
D14 D15 D16  
D17  
D18 D19 D20  
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D93 D94  
D95 D96  
D97 D98  
D99 D100

Figure 2. (a) Measurement sensor (above) and (b) nodes placement plan (below).

# FURNITURE USE STUDY

- Whole building study
- Plot people four times a day for a week





# FURNITURE USE - FINDINGS

Average of Total Occupancy ratio																								
		09:30					12:30					15:30					18:30							
Location		23/1/14	22/1/14	21/1/14	20/1/14	17/1/14	23/1/14	22/1/14	21/1/14	20/1/14	19/1/14	18/1/14	17/1/14	23/1/14	22/1/14	21/1/14	20/1/14	19/1/14	18/1/14	17/1/14	23/1/14	22/1/14	20/1/14	17/1/14
2																								
BS - Brown Pods																								
BS - Catalogue																								
BS - Green Pods																								
BS - Single chairs																								
BS - Table																								
Exh Hall - Computers																								
Exh Hall - Reception																								
Exh Hall - Sofa																								
RR - Chair																								
RR - Cube sits																								
RR - Diner																								
RR - Duets																								
RR - Long table																								
RR - Pod																								
RR - Single height table																								
RR - Spiral																								
RR - Table																								
Sofa inside lift lobby																								

Total occupancy ratio = occupancy/availability of seats

Total occupancy ratio includes 'parked' spaces.

BS = Book stock area

RR = Reading room area

Exh Hall = Exhibition hall area

	when < 0.25
	when ≥ 0.25 and < 0.5
	when ≥ 0.5 and < 0.75
	when ≥ 0.75 and < 1
	when ≥ 1

# INTERVIEWS

Excerpt from an interview with a library user **why** they like one study space in particular, 8th July 2014:

User: “I don’t know why, but I like to be isolated. ... Sometimes, opening books when other people are there, the distance between other people is somehow sort of significant in feeling comfortable. Being too close to other people, that isn’t comfortable.”

- Understand ‘why’ library users use certain furniture



Reading room, 1970s. Empty seats marked with user items highlighted. Source: MS5305, University Records Centre.

# ARCHIVAL PHOTOGRAPHS

- Analyse content for traces
- Provide glimpse to past user practices
- Construct longitudinal view





# FIELD PHOTOGRAPHS

- Record how people use spaces



**Damon**  
@Damon\_barrett2

Follow

The lack of study spaces in this uni is a pure joke, there's literally nowhere after 11am  
[@UniofReading](#) sort it out

4:13 AM - 26 Mar 2019

5 Likes



1



5



Tweet your reply



**Uni of Reading** [@UniofReading](#) · Mar 26

Replying to [@Damon\\_barrett2](#)

Sorry you can't find anywhere - have you tried the [@UniRdg\\_Library](#)'s new Study Space Assistants: [rdg.ac/2TVODhi](#) They know if areas are full or have vacancies, and they can help direct you to the other study areas we have available: [rdg.ac/freeroomfinder](#)



**Library refurbishment: #UoRStudySpace Assistants**

We are pleased to announce the University has funded new Study Space Assistants, now in place to advise students on study places available in the Library, and [blogs.reading.ac.uk](#)



1



1



**UoR Library** [@UniRdg\\_Library](#) · Mar 26

Besides unused teaching rooms in the Free Room Finder, more options listed at [reading.ac.uk/study-space](#) including informal space across campus, RUSU Studies, halls.

# SOCIAL MEDIA

- Can be analysed for qualitative as well as quantitative data
- Emerging technique for post-occupancy evaluation

**CURATING BIG AND  
SMALL DATA**

-

**STREETLIGHT  
EFFECT**

