



CMU STAFF AND FACULTY LIBRARY USAGE

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How are faculty using our collections?

Do they have publisher preferences?

Do they prefer newer or older books compared to
other patron groups?

What types of books are borrowed by CMU staff?

VARIABLES EXAMINED

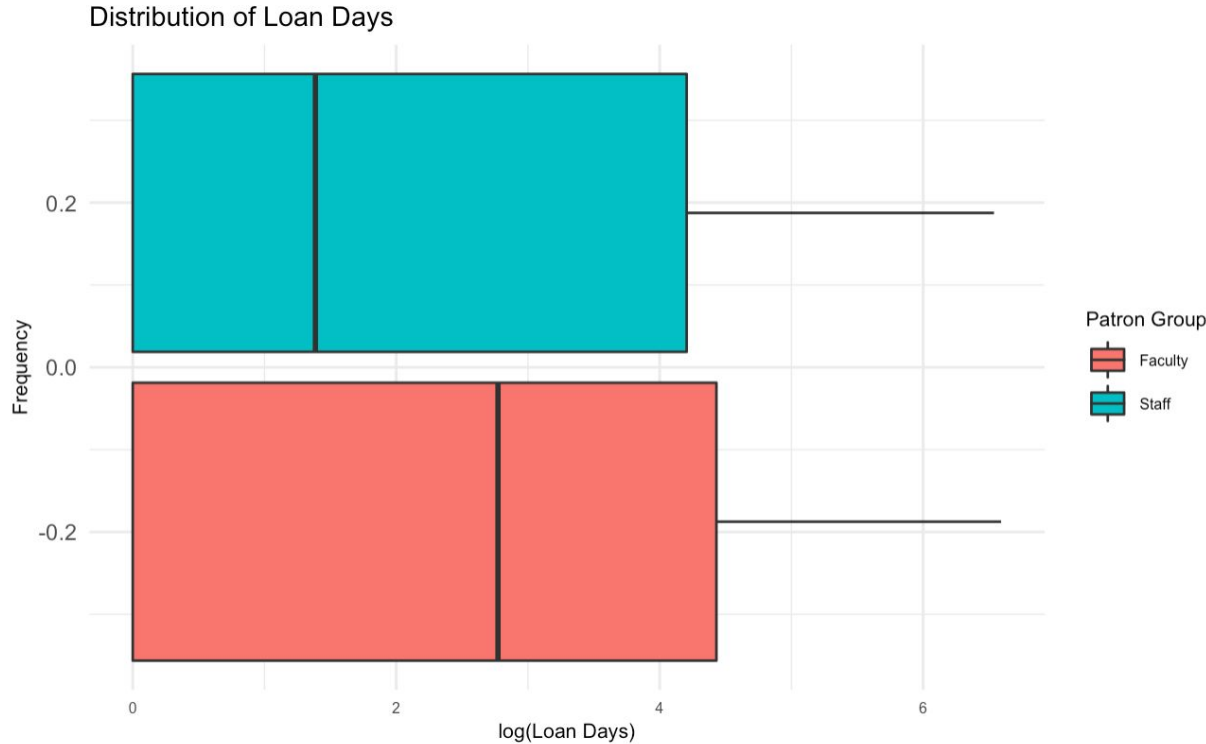
1. Loan Days
2. Loan Month
3. Return Month
4. Library
5. Loan Hour
6. Material Type
7. Subject
8. Publisher
9. Publication Date & Book Age

LOAN DAYS

Summary Statistics	Carnegie Mellon Staff	Carnegie Mellon Faculty
Mean	46.14	56.82
Median	3	15
Standard Deviation	82.71	94.17
Maximum	690	728
Minimum	0	0

- The mean loan days for both groups are greater than the median, indicate that the distributions are skewed to the right

LOAN DAYS



- The median loan time is larger for faculty (give the number of days) than for staff (give the number of days)
- Both groups share similar interquartile ranges

LOAN DAYS

Two Sample t-test

- $H_0: \mu_S - \mu_F = 0$
- $H_a: \mu_S - \mu_F \neq 0$
- $t = 11.799$
- $p \text{ value} < 2.2e-16$

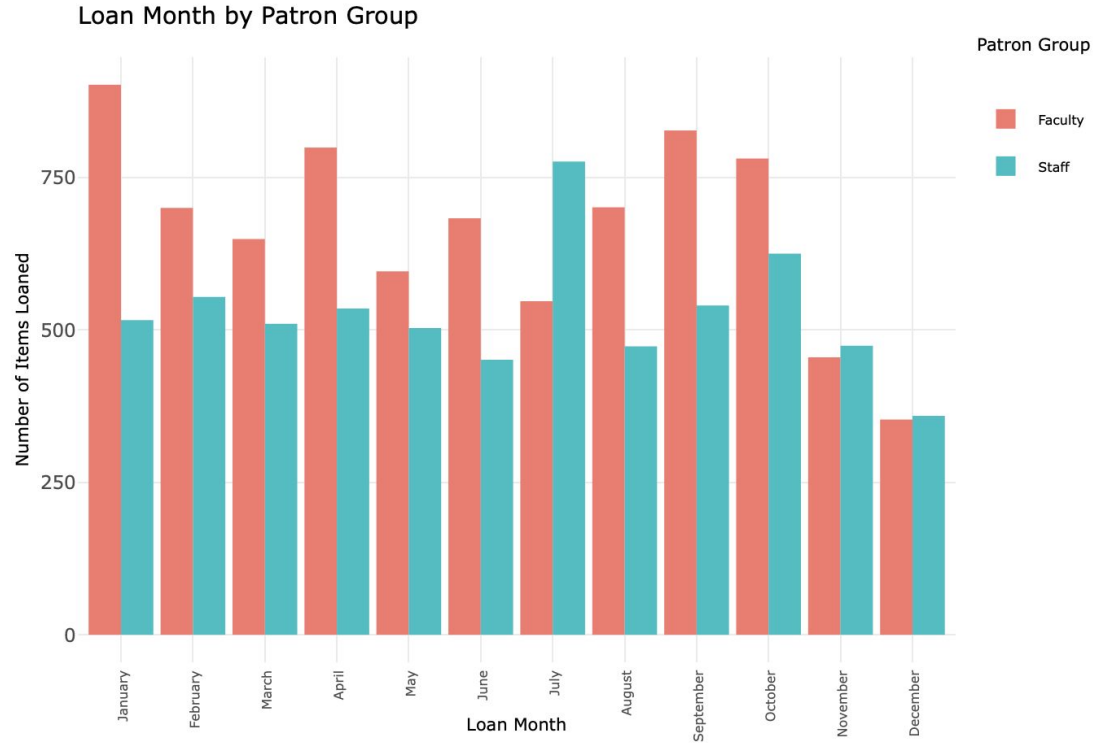
Welch Two Sample t-test

```
data: Loan.Days.LogTransform by New.Patron.Group
t = 11.799, df = 13461, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 0.3463103 0.4842941
sample estimates:
mean in group Faculty    mean in group Staff
      2.475856             2.060554
```

- We reject the null hypothesis and hence do find a relationship between average loan days and patron group

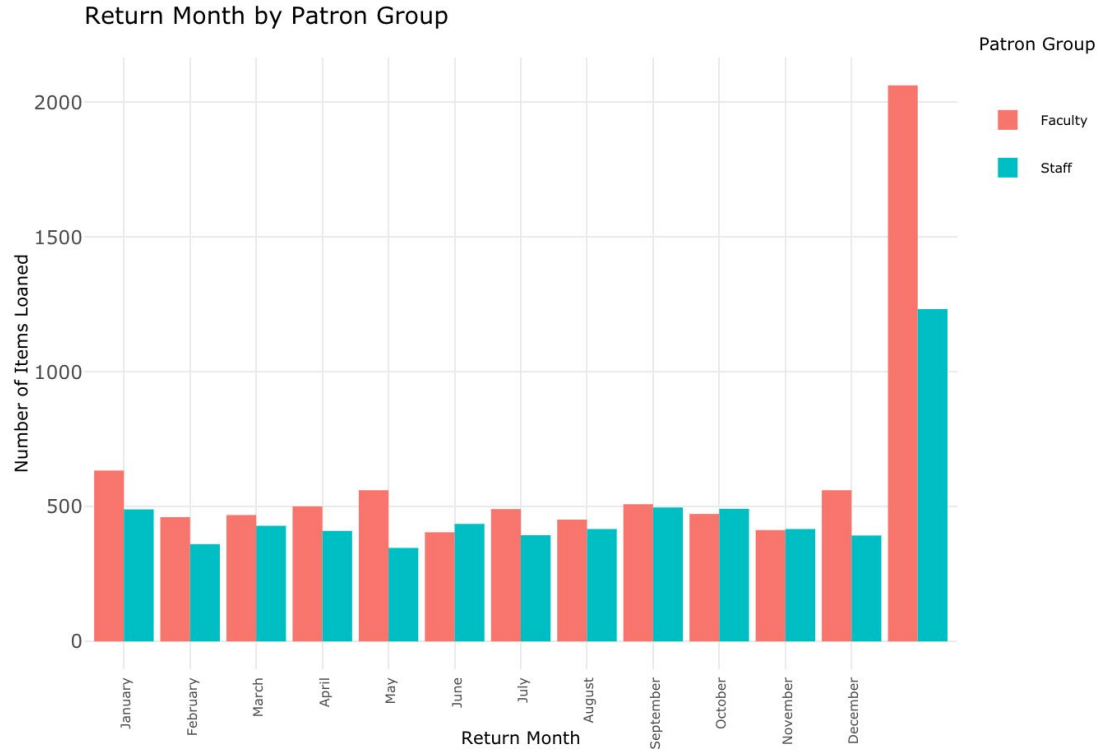
LOAN MONTH

Bar Graph:



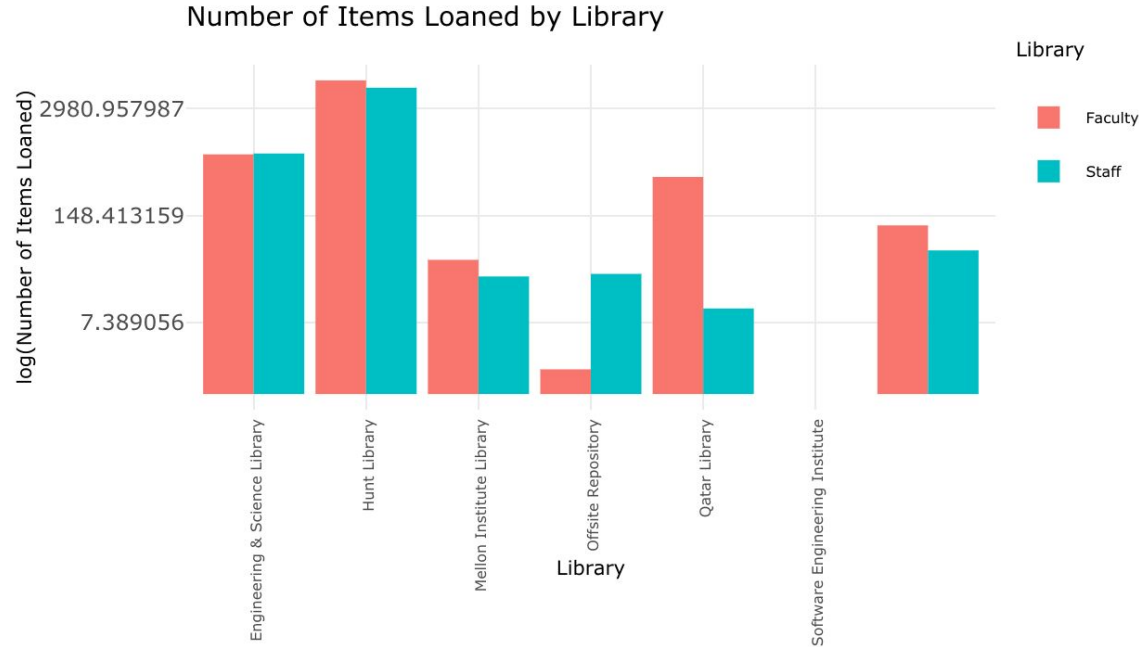
- The top three loan months for staff are July, October, and February
- The top three loan month for faculty are January, September, April

RETURN MONTH



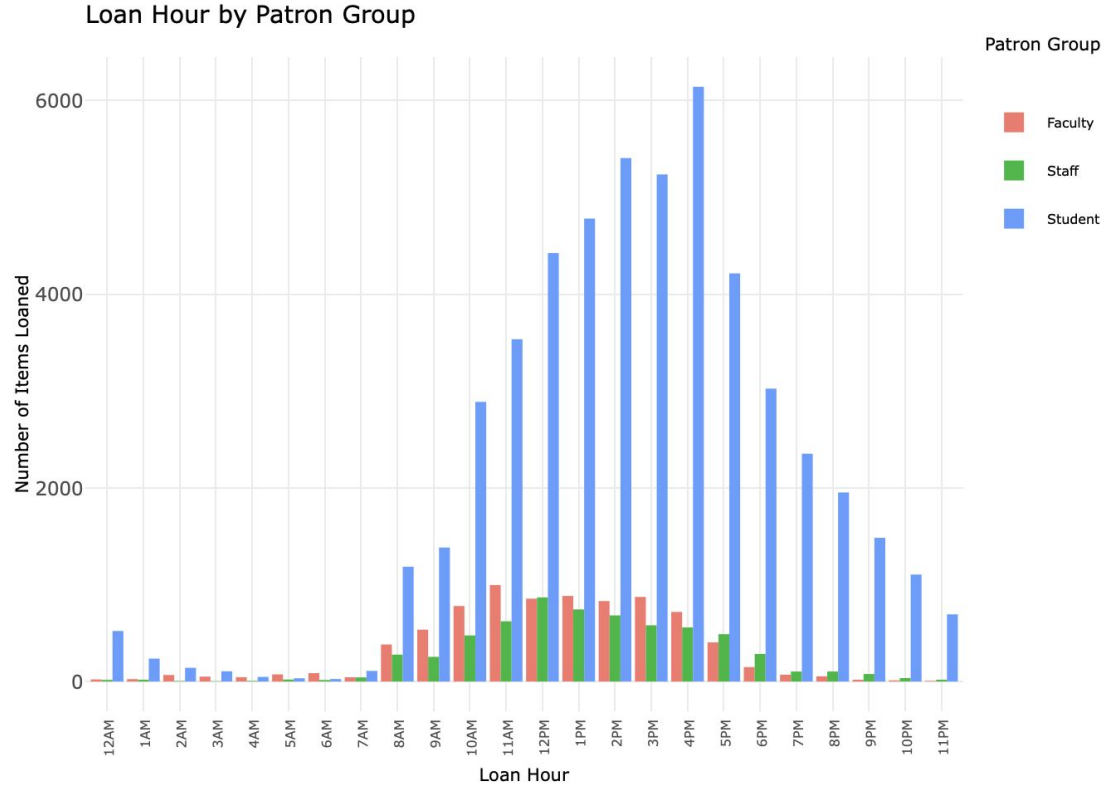
- Material return is approximately uniformly distributed throughout the year, with a slight relative increase in January, May, and December

LIBRARY



- Both faculty and staff prefer Hunt Library and Sorrells over other libraries

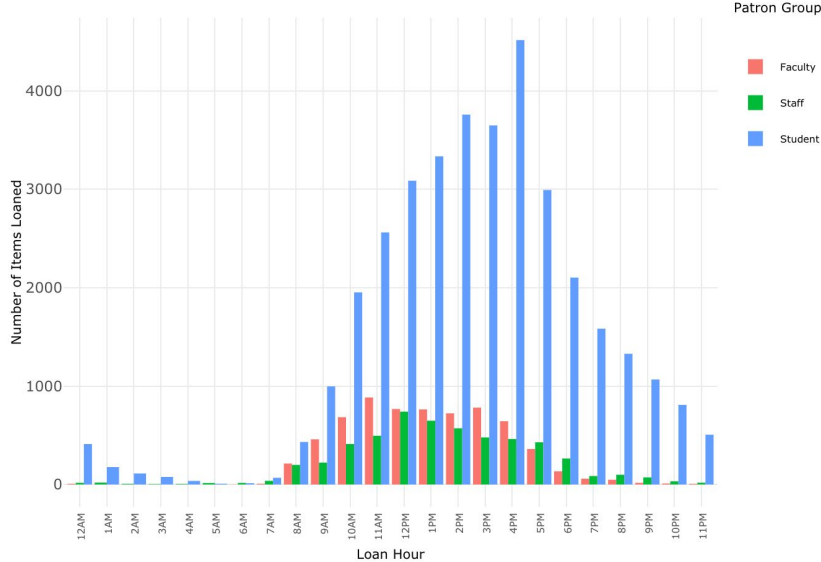
LOAN HOUR



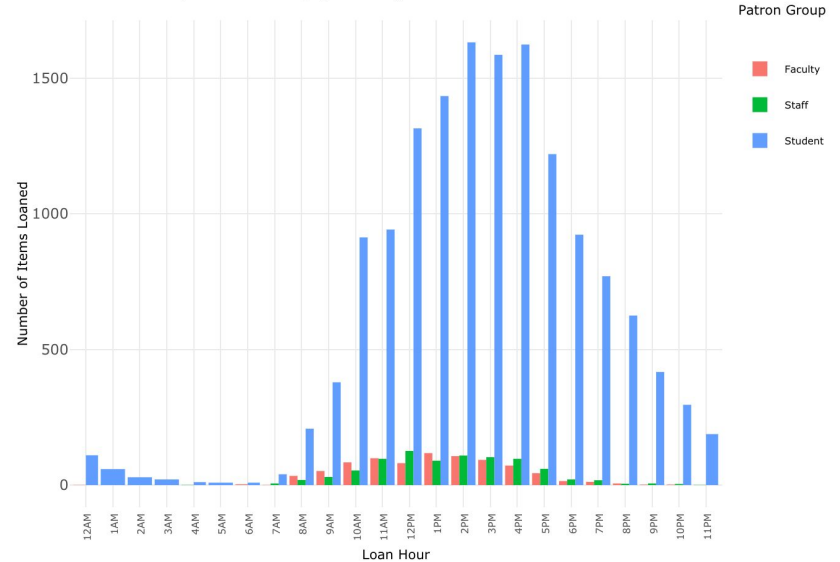
- The shape of the graphs for both faculty and staff are approximately normally distributed
- The shape of the graph for student is slightly left skewed

LOAN HOUR: SORRELLS & HUNT

Loan Hour by Patron Group (Hunt Library)



Loan Hour by Patron Group (Sorrells)



- The shape of the graphs for three groups follows the same general pattern as before: the shape of the graphs for faculty and staff are approximately normally distributed, while the shape of the graph for student is slightly left skewed
- Only students borrow items from Sorrells from 1 to 3AM

MATERIAL TYPE

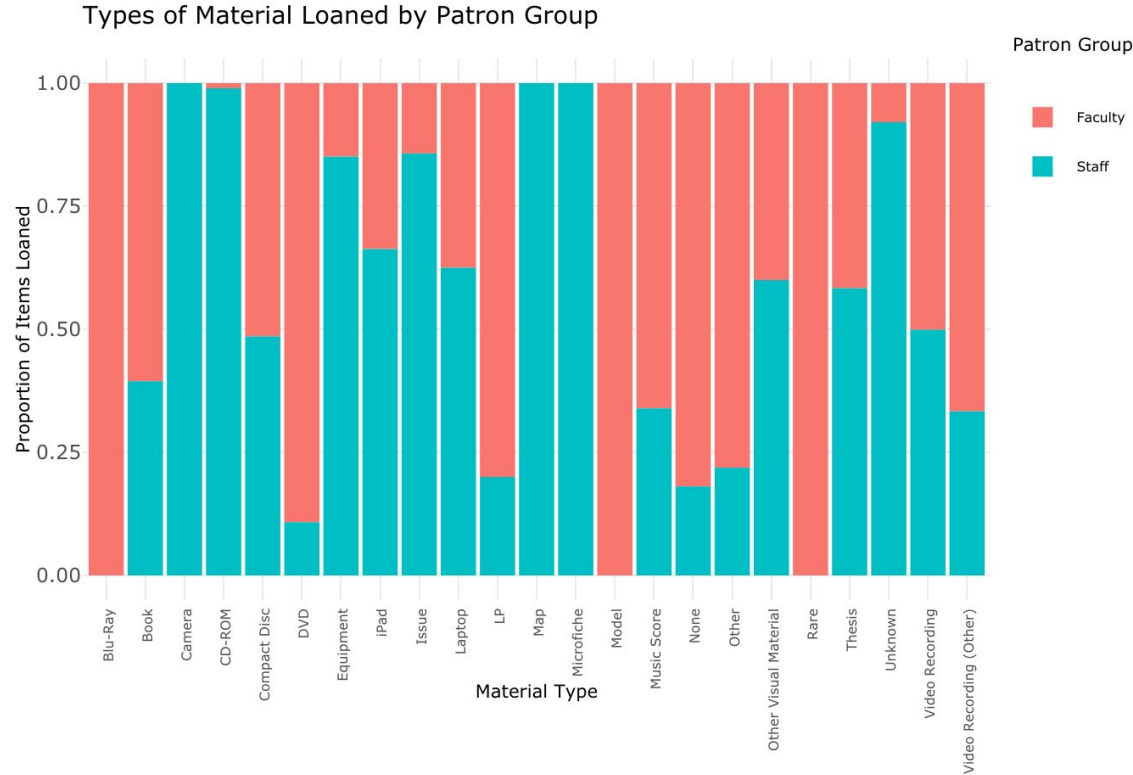
Faculty

	n <dbl>	% <dbl>
Book	6509	81.4
Video Recording	467	5.8
Music Score	331	4.1
Other	200	2.5
Equipment	160	2.0

Staff

	n <dbl>	% <dbl>
Book	4238	67.1
Equipment	912	14.4
Video Recording	465	7.4
Music Score	170	2.7
iPad	116	1.8

MATERIAL TYPE



- Staff dominate borrowing of camera, map, and microfiche
- Faculty dominate borrowing of blue-ray, model, and rare

SUBJECT

Top 25 Most Common Words For Faculty (Not in Order):

Words

Art	Century	Social	Language	States
Women	Literature	Relations	History	United
Criticism	Political	African	Films	Interpretation
War	World	Motion	Music	Government
American	English	Feature	Architecture	Theory

Top 25 Most Common Words For Staff (Not in Order):

Words

Social	Theory	Computer	Works	Century
English	Science	Architecture	States	American
Literature	United	Art	Criticism	History
World	Photography	War	African	Motion
Films	Feature	Music	Piano	Fiction

- Words appearing in both groups are bolded

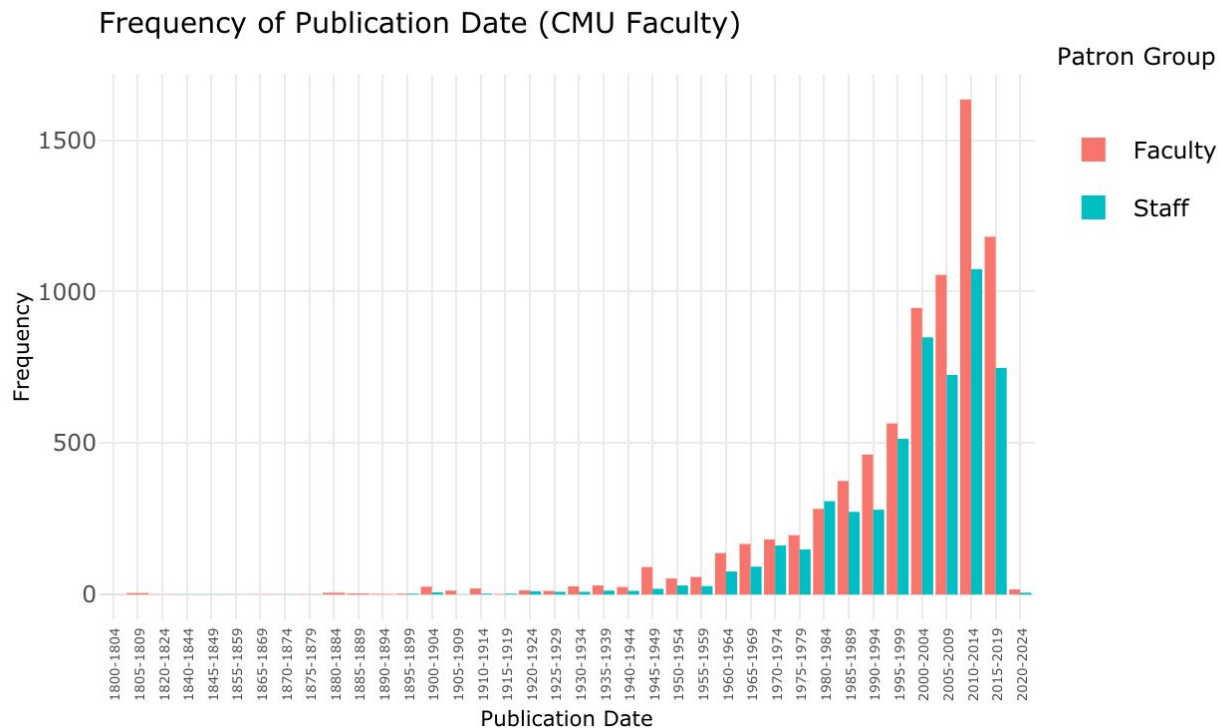
PUBLISHER

Ranking of Publishers (Top 10, excluding N/A):

Ranking	Carnegie Mellon Staff	Number	Carnegie Mellon Faculty	Number
1	Oxford University Press	177	Cambridge University Press	307
2	Cambridge University Press	174	Oxford University Press	303
3	Chadwyck-Healey	130	Routledge	157
4	Routledge	76	Princeton University Press	114
5	Library of Congress Photoduplication Service	64	Palgrave Macmillan	97
6	Wiley	61	University of Chicago Press	90
7	MIT Press	59	Yale University Press	85
8	Springer	55	Springer	83
9	Yale University Press	53	Harvard University Press	82
10	Princeton University Press	47	University of California Press	80

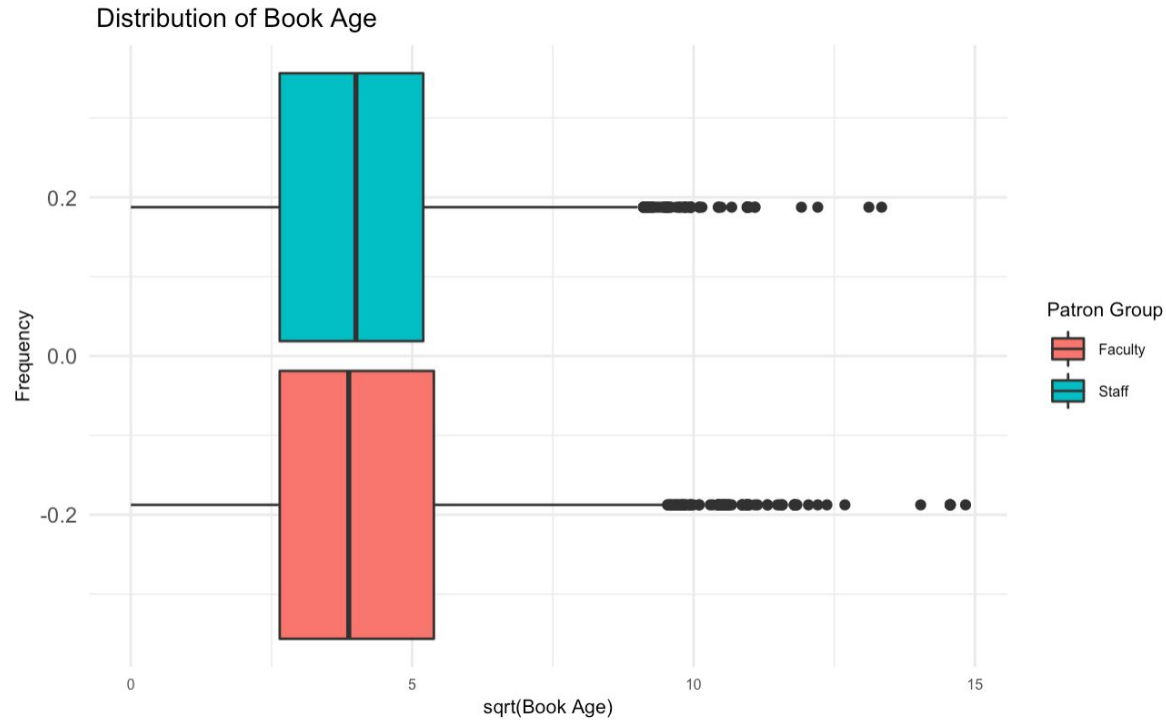
- Words appearing in both groups are bolded

PUBLICATION DATE



- Both faculty and staff prefer newer books, with 2010-2014 being the most popular publication date

BOOK AGE



- Both groups have similar interquartile ranges and medians

Two Sample t-test

- $H_0: \mu_S - \mu_F = 0$
- $H_a: \mu_S - \mu_F \neq 0$
- $t = 1.0457$
- $p \text{ value} = .2957$

Welch Two Sample t-test

```
data: Book.Age.SqrtTransform by New.Patron.Group
t = 1.0457, df = 12344, p-value = 0.2957
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -0.03073204  0.10102223
sample estimates:
mean in group Faculty    mean in group Staff
          4.183741              4.148596
```

- We do not reject the null hypothesis and hence do not find a relationship between book age and patron group

RESULT

- There is a relationship between average loan day and patron group, the mean and median loan time is larger for faculty than for staff
- The top three loan months for staff are July, October, and February, while the top three loan month for faculty are January, September, April
- Material return month is approximately uniformly distributed throughout the year for both groups
- Both faculty and staff prefer Hunt Library and Sorrell over other libraries
- The top loan time for faculty and staff is from 11AM - 2PM, the top loan time for student is from 1PM - 4PM

RESULT

- Faculty frequently borrow book, video recording, and music score, while staff frequently borrow book, equipment, and video recording
- The types of books borrowed by faculty often include keywords such as art, language, and women, while the types of books borrowed by staff often include keywords such as art, science, and computer
- Both faculty and staff prefer Oxford University Press and Cambridge University Press over other publishers
- Both faculty and staff prefer newer books, with 2010-2014 being the most popular publication date
- There is no relationship between publication date and patron group (staff and faculty)



Thank you for your attention!