The Effects of a New Main Library on Circulation and Other Selected Performance Indicators

Melanie H. Collins and Robert Burgin

Librarians need to be aware of the potential impact of a new building on library performance in order to be able to deal with the effect that the change might have on day-to-day operations. Whether a new building affects circulation and other performance indicators and how much effect exists are questions that need to be explored. With the knowledge of which performance indicators are the most substantially affected by a new building, librarians will be better able to plan operating budgets and staffing of public service areas and to do more effective public programming.

This research examined specific performance indicators of public libraries to determine to what degree these measures were affected by the construction and opening of a new headquarters.

Review of the Literature

Little information dealing with the effect of a new library building on circulation was found in the literature. Goals, guidelines, and standards have been developed to dictate how large a building should be in order to serve a population, how the collection should be arranged, and even how many parking spaces are needed. But little has been written to suggest how the new building will affect library performance.

The only substantial data appear to be those of Daniel Suvak, who cited an "informal survey of twenty-five libraries" that had opened new buildings[1]. The libraries included in his informal study included the Plymouth (Indiana) Library; Atlanta Public; Omaha Public; and the Stark County District Library in Canton, Ohio.

Based on his informal data, Suvak made four claims. First, he argued that a new building leads to increased circulation. He claimed that the twenty-five libraries showed, on average, a forty-four percent increase in circulation the year after opening the new building, ranging from a three percent decrease to a one hundred twenty-seven percent gain.

Second, Suvak found that circulation gains are especially significant for smaller libraries. He noted that "small libraries show bigger gains. Where the total circulation is 150,000 or less, a new building increased the circulation an average of sixty-three percent in the year after opening[2]."

Third, Suvak suggested that, in some cases, the increase in circulation continues beyond the first year. He noted that some libraries experienced large increases for four years after the opening of a new building.

Finally, Suvak argued that circulation increases would be matched in most other areas of library service in the new building. This point was illustrated by the Atlanta Public Library, which reported that fifty-five thousand adults and four thousand children visited their new library in the first two weeks, and that two thousand people applied for new library cards in a single, record-setting day.

Present Study

New public library headquarters facilities that were built during the fiscal years 1975-76 through 1985-86 in North Carolina were the focus of the present study. The study excluded those for which only renovations and additions were made. Furthermore, since the authors were interested in changes to performance measures in the years leading up to the new building, only libraries that had data available for three fiscal years before and three fiscal years after the opening of a new headquarters library were used for this study. Libraries that did not report headquarters library circulation to the North Carolina Division of the State Library were not included in the circulation comparisons.

Melanie H. Collins is assistant librarian at the Harnett County Public Library in Lillington, NC. Robert Burgin is an instructor in the School of Library and Information Sciences at North Carolina Central University in Durham, NC.

TABLE 1.

Annual Increases in Circulation, Fiscal Year in Which New Building Opened

Library	Year	Percentage Increase	Mean Increase for Old Headquarters Libraries (N)
Bladen	1978-79	15.92	0.58 (52)
Buncombe	1978-79	4.41	0.58 (52)
Cabarrus	1977-78	19.33	3.58 (53)
Duplin	1981-82	13.31	5.54 (52)
Durham	1980-81	65.75	2.32 (52)
Gaston-Lincoln	1978-79	- 23.76	0.58 (52)
Haywood	1981-82	7.09	5.54 (52)
Lee	1979-80	41.60	1.13 (51)
New Hanover	1980-81	20.19	2.32 (52)
Wayne	1976-77	30.83	2.00 (53)
Median		17.625	2.160

Wilcoxon signed ranks test: $z = -2.090$
$p < .037$

The ten public library systems that had constructed new headquarters libraries in the ten years prior to the study and that had data available for the years specified above were the Bladen County Public Library, Asheville-Buncombe County Library (Pack Memorial), Cabarrus County Library (Charles A. Cannon Memorial), Duplin County-Dorothy Wightman Public Library, Durham County Library, Gaston-Lincoln Regional Library, Haywood County Library, Lee County Library, New Hanover County Public Library, and Wayne County Public Library. More detailed information regarding each of the libraries under study is available in Collins[3].

The phrase "headquarters libraries" in this study refers to all headquarters libraries for county and regional public library systems in North Carolina (municipal libraries were excluded), as listed in the annual *Statistics and Directory* published by the North Carolina Division of State Library[4]. The phrase "old headquarters libraries" in the tables and figure refers to those headquarters libraries that did not meet the criteria for inclusion in the group of ten listed above.

All data were taken from the *Statistics and Directory* and were assumed to be accurate. Dates for construction of the headquarters facilities that were not supplied by the libraries studied were supplied by the State Library.

Because book circulation was the only performance indicator that was reported separately for headquarters libraries in the annual *Statistics and Directory*, it was the only performance indicator that provided direct comparisons between new headquarters library buildings and headquarters libraries that did not construct new facilities.

Other performance indicators were gathered for the total library system (headquarters, branches, bookmobiles, and other circulation outlets). These included local operating receipts; expenditures (personnel, books, total); total book

TABLE 2.

Annual Increases in Circulation, Fiscal Year in Which Greatest Increase Occurred

Library	Year	Percentage Increase	Mean Increase for Old Headquarters Libraries (N)
Bladen	1978-79	15.92	0.58 (52)
Buncombe	1979-80	19.76	1.13 (51)
Cabarrus	1977-78	19.33	3.58 (53)
Duplin	1982-83	29.09	6.28 (52)
Durham	1980-81	65.75	2.32 (52)
Gaston-Lincoln	1979-80	29.13	1.13 (52)
Haywood	1982-83	14.22	6.28 (52)
Lee	1979-80	41.60	1.13 (51)
New Hanover	1981-82	22.34	5.54 (52)
Wayne	1976-77	30.83	2.00 (53)
Median		25.715	2.160

Wilcoxon signed ranks test: $z = -2.803$
$p < .005$

collection; number of volumes added to the collection; systemwide book circulation; and number of staff, both professional and paraprofessional.

Results

Tables 1, 2, 3, and 4 summarize the annual increases in circulation for the ten libraries that opened new buildings during the ten years prior to the study. The tables list increases for the fiscal year in which the building opened and for the first, second, and third fiscal years following the year of the opening.

For the year of the opening, circulation changes ranged from a drop of 23.8 percent to an increase of 65.8 percent. The median increase for the ten libraries was 17.6 percent for the year of the building opening. Seven of the ten libraries experienced circulation growth higher than ten percent.

For the first fiscal year after the opening of the new building, the median increase in circulation was even higher—17.8 percent. Changes in circulation ranged from a 2.4 percent drop to a 29.1 percent increase. Again, seven of the ten libraries achieved "double digit" circulation growth.

Increases in circulation for the second fiscal year after the new building opening were less dramatic—a median of 8.1 percent. Only three libraries had circulation growth above ten percent. No library experienced a loss in circulation; increases ranged from 0.72 percent to 27.1 percent.

By the third fiscal year after the building had opened, the median increase in circulation had dropped to only 2.6 percent. Three libraries showed lossses in circulation, and none experienced an increase of greater than ten percent. Changes in circulation ranged from a two percent loss to an increase of eight percent.

In addition, for the fiscal years prior to the opening of the new building, median circulation increases were positive (1.4 percent between the third and second years prior to opening, 2.7 percent between the second and first years prior to opening). It is noteworthy that several libraries experienced decreases in circulation during these years, some quite large. The authors did not explore whether these drops were due to the increasing problems with older facilities, the fact that the libraries were closed for moving, or other reasons.

Increases in Circulation

All four of the findings of Suvak's informal survey, outlined above, were examined in the present study and are discussed below.

TABLE 3.
Annual Increases in Circulation After Building Opening

Library	Year of Opening	One Year After	Two Years After	Three Years After
Bladen	15.92	2.73	9.25	2.46
Old HQs	0.58	1.13	2.32	5.54
Buncombe	4.41	19.76	9.95	5.61
Old HQs	0.58	1.13	2.32	5.54
Cabarrus	19.33	4.32	6.95	-0.41
Old HQs	3.58	0.58	1.13	2.32
Duplin	13.31	29.09	27.08	2.70
Old HQs	5.54	6.28	1.05	3.39
Durham	65.75	15.76	13.30	8.03
Old HQs	2.32	5.54	6.28	1.05
Gaston-Lincoln	-23.76	29.13	3.21	5.20
Old HQs	0.58	1.13	2.32	5.54
Haywood	7.09	14.22	4.68	-2.03
Old HQs	5.54	6.28	1.05	3.39
Lee	41.60	-2.42	0.72	4.86
Old HQs	1.13	2.32	5.54	6.28
New Hanover	20.19	22.34	1.32	-1.63
Old HQs	2.32	5.54	6.28	1.05
Wayne	30.83	27.17	10.76	0.24
Old HQs	2.00	3.58	0.58	1.13
Median - New HQS	17.625	17.760	8.100	2.580
Median - Old HQs	2.160	2.950	2.320	3.390
Wilcoxon signed ranks test:	$z = 2.090$ $p < .037$	$z = 2.497$ $p < .013$	$z = 2.090$ $p < .037$	$z = 1.682$ $p < .093$

First, the claim that a new building leads to increased circulation was examined. Their claim was tested directly by comparing the annual increases in circulation for headquarters libraries with new buildings to the annual increases in circulation experienced by headquarters libraries that did not construct new facilities during the ten years prior to the study.

The annual increases in circulation for headquarters libraries with new buildings were significantly higher than the annual increases in circulation experienced by headquarters libraries that did not construct new buildings, using the nonparametric Wilcoxon signed ranks test to determine significance of difference. This finding was true both for the fiscal year in which the new building opened ($p < .037$) and, even more dramatically, for the fiscal year of the greatest circulation increase following the opening of the new building, which was the fiscal year of the opening in five cases and the first full fiscal year after the building opened in five cases ($p < .005$).

Tables 1 and 2 show the circulation increases for the ten new headquarters libraries and for headquarters libraries that did not construct new buildings during those years. While Suvak's claim that a new building leads to increased circulation was corroborated, the increases in circulation for the libraries with new buildings in the present study were not as large as the average of forty-four percent found in Suvak's informal sample. Even for the fiscal year in which the greatest increase occurred, the median for the present study was only 25.7 percent; only one library in this study exceeded Suvak's average.

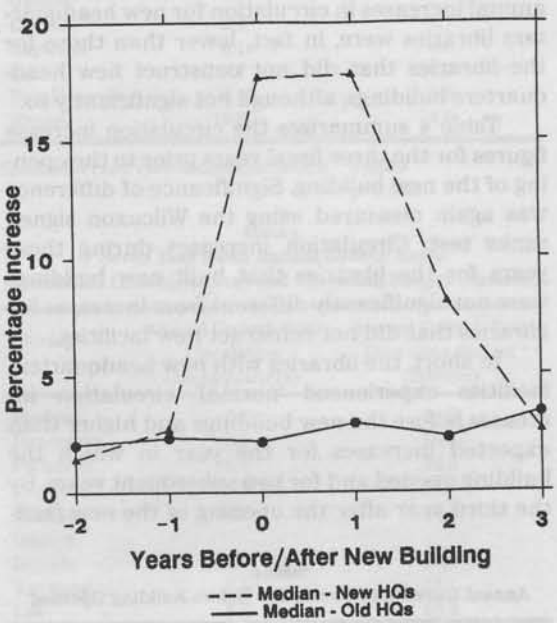
Small vs Large Libraries

Second, the assertion that small libraries show bigger gains in circulation with a new building was tested directly by comparing circulation increases in the large libraries with new headquarters buildings with circulation increases in the smaller libraries with new buildings. Suvak's figure of 150,000 annual circulation was used to determine which libraries were large and which small; the circulation figure for the fiscal year prior to the opening of the new building was used. Buncombe, Durham, Gaston-Lincoln, and New Hanover had annual circulation figures during that fiscal year large enough to designate them as large libraries.

For the fiscal year in which the new headquarters building opened, the small libraries experienced a median increase in circulation of 17.6 percent, the large libraries 12.3 percent. For the fiscal year in which the greatest circulation increase was experienced, the large libraries registered a median increase of 25.7 percent, the small libraries 24.2 percent.

Neither difference was significant, based on a nonparametric Mann-Whitney U test; thus Suvak's claim, that small libraries show larger circulation increases with a new building, was not confirmed by the present study.

Figure 1
Annual Increases in Circulation



Increases Beyond the First Year

Third, the degree to which circulation increases continue beyond the first year after completion of construction was tested directly. Data were gathered for the three fiscal years prior to the opening of the new headquarters library, the fiscal year of the opening, and the three fiscal years after the year of the opening. (See Figure 1. These data are further illustrated by the figures accompanying the narratives for each of the libraries studied in Collins[5].)

Table 3 summarizes the circulation increase figures for the fiscal year in which the new headquarters library was opened and for the three following fiscal years. Significance of difference was measured using the Wilcoxon signed ranks test.

As we saw above, for the fiscal year in which the new building opened, the annual increases in circulation for headquarters libraries with new buildings were significantly higher than the annual increases in circulation experienced by

headquarters libraries that did not construct new buildings ($p < .037$). Likewise, increases in circulation for the new libraries were significantly higher for the first fiscal year ($p < .013$) and for the second fiscal year ($p < .037$) after the buildings opened.

Contrary to Suvak's finding, however, large increases in circulation for the libraries in the present study did not continue past the second fiscal year after the new building opened. For the third fiscal year after the building opening, the annual increases in circulation for new headquarters libraries were, in fact, lower than those for the libraries that did not construct new headquarters buildings, although not signficiantly so.

Table 4 summarizes the circulation increase figures for the three fiscal years prior to the opening of the new building. Significance of difference was again measured using the Wilcoxon signed ranks test. Circulation increases during these years for the libraries that built new buildings were not significantly different from increases for libraries that did not construct new facilities.

In short, the libraries with new headquarters facilities experienced 'normal' circulation increases before the new buildings and higher than expected increases for the year in which the building opened and for two subsequent years. By the third year after the opening of the new facility, however, circulation increases were back to 'normal,' although at a higher level of circulation.

TABLE 4.
Annual Increses in Circulation Before Building Opening

Library	Two Years Before	One Year Before
Bladen	-19.88	-9.12
Old HQs	2.00	3.58
Buncombe	-4.09	-5.74
Old HQs	2.00	3.58
Cabarrus	0.40	5.33
Old HQs	3.37	2.00
Duplin	-.29	-48.46
Old HQs	1.13	2.32
Durham	-1.80	3.54
Old HQs	0.58	1.13
Gaston-Lincoln	2.97	4.00
Old HQs	2.00	3.58
Haywood	4.06	4.76
Old HQs	1.13	2.32
Lee	2.40	-10.32
Old HQs	3.58	0.58
New Hanover	7.08	5.92
Old HQs	0.58	1.13
Wayne	15.53	1.83
Old HQs	11.18	3.37
Median - New HQs	1.400	2.685
Median - Old HQs	2.000	2.320
Wilcoxon signed ranks test:	$z = 0.561$ $p < .575$	$z = 0.866$ $p < .386$

Other Performance Indicators

Finally, the claim that other performance indicators are also affected by the opening of a new building was examined, but only indirectly. Unfortunately, these data were available for the entire system and not for the headquarters library only. Findings in this area were therefore suggestive rather than conclusive.

Spearman rank correlation coefficients were obtained between each of the performance indicators under consideration and the increase in headquarters circulation for each of the ten libraries over the seven years studied (from three fiscal years prior to the new building to three fiscal years after the opening).

A significant correlation was found between the growth rate for new titles added and circulation growth ($p < .037$; see Table 5). Libraries with significant increases in the number of titles added also tended to experience large increases in circulation. For example, both Durham and Wayne experienced exceptional circulation growth and reported comparable increases in new titles added to their collection while the libraries that added fewer titles had small increases in circulation.

TABLE 5.
Seven Year Mean Annual Growth Rates Circulation (Headquarters) and New Titles Added (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate New Titles Added (System)
Bladen	-0.5	-2.3
Buncombe	5.2	3.2
Cabarrus	6.7	6.5
Duplin	-0.3	4.8
Durham	23.1	24.3
Gaston-Lincoln	2.4	1.6
Haywood	6.1	-4.3
Lee	5.7	-2.1
New Hanover	8.4	8.8
Wayne	19.6	38.0
Spearman rank correlation coefficient:	0.6970 $p < .037$	

A significant correlation between the circulation growth rate of the entire library system and that of the headquarters library was also found ($p < .037$; see Table 6). Where headquarters library circulation grew rapidly, system-wide circulation also tended to show strong growth. This finding is not surprising since most headquarters libraries contribute significantly to the circulation of the entire system.

TABLE 6.
Seven Year Mean Annual Growth Rates
Circulation (Headquarters) and Circulation (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Circulation (System)
Bladen	-0.5	2.1
Buncombe	5.2	4.2
Cabarrus	6.7	-1.2
Duplin	-0.3	-2.7
Durham	23.1	18.4
Gaston-Lincoln	2.4	5.2
Haywood	6.1	6.5
Lee	5.7	4.2
New Hanover	8.4	10.2
Wayne	19.6	16.5

Spearman rank correlation coefficient: 0.7538
$p < .037$

By contrast, significant correlations were not found between increases in any other performance indicator and headquarters circulation growth. It would appear, then, that increases in areas such as budgets and expenditures, overall collection size, and number of staff were less closely tied to circulation increases than were increases in the number of new titles. (See Tables 7-13)

TABLE 7.
Seven Year Mean Annual Growth Rates
Circulation (Headquarters) and Book Budget (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Book Budget (System)
Bladen	-0.5	18.6
Buncombe	5.2	9.7
Cabarrus	6.7	14.2
Duplin	-0.3	26.6
Durham	23.1	41.8
Gaston-Lincoln	2.4	7.7
Haywood	6.1	5.6
Lee	5.7	3.0
New Hanover	8.4	23.0
Wayne	19.6	55.3

Spearman rank correlation coefficient: 0.3939
$p < .237$

The data suggest that a library occupying a new headquarters building should expect a nearly immediate and rather dramatic increase in circulation.

TABLE 8.
Seven Year Mean Annual Growth Rates
Circulation (Headquarters) and Book Collection Size (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Book Collection Size (System)
Bladen	-0.5	-4.0
Buncombe	5.2	7.0
Cabarrus	6.7	3.4
Duplin	-0.3	1.2
Durham	23.1	6.9
Gaston-Lincoln	2.4	1.7
Haywood	6.1	6.0
Lee	5.7	2.7
New Hanover	8.4	1.6
Wayne	19.6	4.0

Spearman rank correlation coefficient: 0.5630
$p < .091$

TABLE 9.
Seven Year Mean Annual Growth Rates
Circulation (Headquarters) and Operating Budget (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Operating Budget (System)
Bladen	-0.5	26.6
Buncombe	5.2	16.1
Cabarrus	6.7	26.6
Duplin	-0.3	13.5
Durham	23.1	30.4
Gaston-Lincoln	2.4	16.4
Haywood	6.1	11.1
Lee	5.7	23.3
New Hanover	8.4	30.9
Wayne	19.6	38.3

Spearman rank correlation coefficient: 0.6140
$p < .066$

TABLE 10.
Seven Year Mean Annual Growth Rates
Circulation (Headquarters) and Local Operating Receipts (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Local Operating Receipts (System)
Bladen	-0.5	58.4
Buncombe	5.2	17.7
Cabarrus	6.7	23.6
Duplin	-0.3	1.2
Durham	23.1	32.1
Gaston-Lincoln	2.4	19.0
Haywood	6.1	11.0
Lee	5.7	31.9
New Hanover	8.4	34.0
Wayne	19.6	38.2

Spearman rank correlation coefficient: 0.3091
$p < .354$

TABLE 11.
Seven Year Mean Annual Growth Rates Circulation (Headquarters) and Personnel Budget (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Personnel Budget (System)
Bladen	-0.5	31.1
Buncombe	5.2	15.3
Cabarrus	6.7	32.7
Duplin	-0.3	6.9
Durham	23.1	21.7
Gaston-Lincoln	2.4	16.6
Haywood	6.1	10.4
Lee	5.7	26.6
New Hanover	8.4	24.5
Wayne	19.6	28.1

Spearman rank correlation coefficient: 0.2364
$p < .478$

Discussion

While it is evident that several factors contribute to the fluctuation of a library's circulation pattern, the data suggest that a library occupying a new headquaters building should expect a nearly immediate and rather dramatic increase in circulation.

For the ten headquarters libraries in the present study, the median annual increase in circulation exceeded seventeen percent for the year in which the new building was opened and for the first fiscal year following the opening. In addition, increases for the second fiscal year after the opening of the new facility were significantly higher than were increases for libraries that did not construct new buildings. The increase was not related the the size of the library; no significant difference was found between increases for large libraries and those for small libraries. These large increases in circulation did not continue beyond the second fiscal year after the opening of the new building, though.

Significant correlations were found between increases in circulation for the headquarters

The 1989 Book Week poster has been created for the Children's Book Council by Caldecott Medalist Richard Egielski. National Book Week will be observed for the 70th year November 13-19 in 1989. Egielski's full-color 17" x 22" poster costs $6.50. It is also available with many other items at a substantial savings in the Council's Book Week Bargain Kit. Send a 25¢ stamped, self-addressed envelope to CBC (P.O. Box 706, New York, NY 10276-0706) for "Book Week Brochure" for details.

TABLE 12.
Seven Year Mean Annual Growth Rates Circulation (Headquarters) and Professional Staff (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Professional Staff (System)
Bladen	-0.5	0.0
Buncombe	5.2	5.6
Cabarrus	6.7	16.7
Duplin	-0.3	0.0
Durham	23.1	10.2
Gaston-Lincoln	2.4	2.5
Haywood	6.1	2.1
Lee	5.7	16.7
New Hanover	8.4	13.3
Wayne	19.6	2.8

Spearman rank correlation coefficient: 0.5976
$p < .073$

TABLE 13.
Seven Year Mean Annual Growth Rates Circulation (Headquarters) and Paraprofessional Staff (System)

Library	Annual Growth Rate Circulation (Headquarters)	Annual Growth Rate Paraprofessional Staff (System)
Bladen	-0.5	5.6
Buncombe	5.2	5.1
Cabarrus	6.7	6.1
Duplin	-0.3	12.2
Durham	23.1	22.5
Gaston-Lincoln	2.4	3.6
Haywood	6.1	3.9
Lee	5.7	7.3
New Hanover	8.4	6.8
Wayne	19.6	6.0

Spearman rank correlation coefficient: 0.3576
$p < .283$

library and increases in system-wide circulation as well as increases in the number of new titles added system-wide. While the former finding is not surprising, the second correlation is of interest, especially when a significant correlation was not found between circulation increases and system-wide book budget growth nor between circulation increases and growth in the overall size of the sytem's book collection. The increase in new titles, not the increase in the amount of money spent for books nor the increase in collection size, appears to matter.

Further study is, of course, needed. The present study and the only previous study (Suvak's admittedly "informal" survey) involved small numbers of libraries—ten and twenty-five, respectively. The impact of a new library building on a library's circulation and on other performance indicators is too important to leave to hearsay and anecdotal evidence.

Note

Authors' note: Due to the small number of libraries that opened new headquarters buildings during the study, nonparametric measures were generally used throughout the present study.

References

1. Suvak, Daniel. "Opening Day: What to Expect in a New Library." *Wilson Library Bulletin* 57, 1982: 140-141, 190.
2. *Ibid.*, 141,
3. Collins, Melanie H. "The Effects of a New Main Library on Circulation and Other Selected Performance Indicators." Master's paper, North Carolina Central University, 1988.
4. North Carolina Department of Cultural Resources. Division of State Library. *Statistics and Directory.* Raleigh, NC. All volumes 1973-1974 through 1984-1985.
5. Collins.