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## The Effect of Integrated Shelving on Circulation of Adult and Juvenile Non Fiction

Nancy Hasenwinkel  
*University of Northern Iowa*

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# The Effect of Integrated Shelving on Circulation of Adult and Juvenile Non Fiction

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### Abstract

This study analyzed one part of the physical arrangement of public libraries -- the shelving of nonfiction books. The results of the study could offer practical help in one aspect of new or remodeled public library buildings, that is, would it be better to shelve the children's non-fiction books in a separate area, perhaps with the children's fiction books? Or would a better approach be to shelve all non-fiction books, whether on a second grade or college reading level, on the same shelves?

Three hypotheses were proposed dealing with the differences in non-fiction book circulation in two small public libraries in Charles City and Clear Lake, Iowa. Data were collected during two representative weeks in April, 1993. For all of the hypotheses, the intershelving of all non-fiction books resulted in at least a 15% difference in the number of non-fiction books circulated.

The Effect of Integrated Shelving on Circulation  
of Adult and Juvenile Non-Fiction

A Graduate Research Paper  
Submitted to the  
Division of Library Science  
Department of Curriculum and Instruction  
in Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

UNIVERSITY OF NORTHERN IOWA

by  
Nancy Hasenwinkel

July, 1993

## ABSTRACT

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Three hypotheses were proposed dealing with the differences in non-fiction book circulation in two small public libraries in Charles City and Clear Lake, Iowa. Data were collected during two representative weeks in April, 1993. For all of the hypotheses, the intershelving of all non-fiction books resulted in at least a 15% difference in the number of non-fiction books circulated.

This Research Paper by : Nancy Hasenwinkel

Titled: The Effect of Integrated Shelving on Circulation of  
Adult and Juvenile Non-Fiction

has been approved as meeting the research paper requirement for the  
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July 14, 1993  
Date Approved

Leah Hiland  
\_\_\_\_\_  
Graduate Faculty Reader

July 14, 1993  
Date Approved

Barbara R. Safford  
\_\_\_\_\_  
Graduate Faculty Reader

July 16, 1993  
Date Approved

Peggy Ishler  
\_\_\_\_\_  
Head, Department of Curriculum  
and Instruction

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## Chapter 1

### Introduction

A traditional practice in public libraries has been to have a separate children's room or children's area, and to shelve all the children's materials there. This would include juvenile and easy fiction, juvenile non-fiction, and audio-visual materials published on a juvenile level. In many older Carnegie public libraries one finds the lower level devoted to children's materials and the upper level specified for adult materials.

One will sometimes find a public library, however, which keeps the children's room for juvenile fiction and audio-visual materials, but shelves juvenile non-fiction in the same area as the adult non-fiction books. This difference in integrated shelving of non-fiction versus separate shelving was examined in this study. For purposes of this study, non-fiction is defined as any book that is classified with a Dewey classification number or is a biography.

As public libraries are remodeled, rearranged, or newly built, it would be helpful to know which method of shelving juvenile non-fiction would be the most beneficial to all patrons. Shelving gives access to materials which is one of the basic purposes of a library. One would think that there would be research available to study on this



subject, but as is reflected in the review of the available literature, there has been little research published on this specific area of library practice.

In the literature, there is quite a bit of research on related areas, such as the concept of browsing. These studies address the issues of the optimal location of materials that will heighten the chance that they will be chosen by a patron and checked out. One of the assumptions of this study is that placement does affect the circulation of books. An opposing issue is that of information overload; if there are too many choices in a given subject area, will this decrease the usefulness of the collection for the patron?

Another related area has to do with cross selection. In this research "cross selection" refers to juveniles (children under the age of 13) checking out materials that are classified as adult, and adults (those people age 13 or older) checking out materials classified as juvenile. The literature in this area deals mainly with the psychological aspects of illiterate adults or those adults reading significantly below their age level and with talented children who are reading significantly above their age level.

The researcher's experience is in a public library that was built in 1979 with integrated shelving for non-fiction. The researcher has found this, in practice, to be

a very workable arrangement with only a few drawbacks. These drawbacks are that parents and children may expect that all juvenile level books will be in the children's room, and they have to ask a staff person where the non-fiction books for children are located. For the new patron, questions such as "Where are your horse books?" are quite common. The only negative comment about the current integrated shelving has come from a person who donated a type of non-fiction book for children and has been disappointed that the donation was shelved in the integrated non-fiction stacks as opposed to the children's room.

In day to day experience many advantages can be seen in using integrated shelving. Intelligent and educated adults may check out non-fiction books written on the third grade level because they want quick and basic summaries of particular subjects and do not want to wade through 300 page books to find the information they need. Adults who read at a lower reading level check out juvenile non-fiction written at a third grade level without the embarrassment of looking in the children's room for information. Many fifth and sixth graders who have been assigned a research topic find useful information in books classified as adult non-fiction.

From observation in public libraries where adult and juvenile non-fiction books are shelved separately, the

researcher sees many instances in which a book is located in one section but would be useful for the other age group as well. Many adults, for example, would enjoy reading sets of Time-Life non-fiction material on the Civil War which may be shelved in the children's section of a library. They would really have to make an effort to find it in that particular section.

What impact does the different shelving arrangements have on the circulation of non-fiction books? This question leads to the following hypotheses: 1. The difference between the circulation of adult non-fiction books by juveniles will be at least 20% in the two libraries with different shelving arrangements, 2. The difference between the circulation of juvenile non-fiction books by adults will be at least 10% in the two libraries with different shelving arrangements and, 3. The intershelving method will result in at least a 15% difference in the total number of non-fiction books circulating when comparing two similar public libraries, one of which intershelves non-fiction while the other shelves non-fiction in separate areas.

For the purposes of this study, non-fiction books are defined as those classified with a Dewey Decimal number, excluding all fiction designations such as "F" or "E", and excluding all books from the Reference section of a library. Biography is defined as a written account of a

person's life classified with a special designation, such as "B," and all biographies are included with the non-fiction books for this study.

Intershelving or integrated shelving is defined as those shelving situations in the non-fiction stacks of public libraries where age or reading level designations in the call number, such as "J" for Juvenile or "YA" for Young Adult, are ignored in filing, and all age levels of a Dewey classification are shelved together.

Cross selection is defined as the process in which a person of one age level selects a book intended for readers outside of his or her age level.

One of the limitations of the study was that the two public libraries were not identical. Another limitation is the time period involved. A high level of staff involvement at the circulation desk was necessary to record the necessary data. The compromise is to use a two week period at the two libraries, using the same two weeks at both libraries. An assumption was that there are some months out the year that represent the typical circulation of public library materials: March, April, October, and November. This is because the community schools are in session and there are no long holiday breaks. The weeks used in this study fell within these months.

Another limitation of this study involved the different accuracy levels of the various staff members who

recorded data at the two libraries. Since the researcher did not record the actual raw data, there is inevitably some variation in the way different staff members recorded data. To diminish this problem as much as possible, each library was given an instruction sheet which was in a conspicuous place each day that data were recorded.

One other limitation that should be mentioned is the fact that because adults are checking out non-fiction books written at the third grade or above level, one cannot assume that they will be reading the books themselves; they may be checked out for their children.

The research involves using two small Iowa public libraries to try to answer the question of whether the intershelving of adult and juvenile non-fiction effect the circulation of these books by adults and juveniles.

## Chapter 2

### Review of Related Literature

The researcher found very little information in the literature that dealt directly with the integrated shelving of adult and juvenile non-fiction. All the literature found dealt with related areas. There was agreement in this assessment of little or no information by Prabha, Bunge, and Rice (1988) in a study they conducted on aspects of non-fiction book use. They make the observation that for the hundreds of years that books have been around, and have been a staple in libraries, there is very little research on the nature of book use (p. 178). Literature about browsing, information overload, and how cross selection might be illustrated by adults reading below their age level and children reading above their age level is reviewed.

Browsing is the primary way in which library patrons choose materials. In a study that the Online Computer Library Center (OCLC) made, it was found that non-fiction book users fell into three groups: those who knew in advance which book title they wanted to borrow (24.8%), those who used the library catalog to choose their title (19.9%), and browsers (55.3%) (Nonfiction..., 1987, p. 15). An English study (Goldhor, 1972) of medium-sized public libraries in 1965 found that 58% of adult borrowers

selected their books by browsing (p. 385). In analyzing five years of user surveys of the Charles City, Iowa, Public Library, the researcher found that over 90% of the respondents each year answered that their purpose in coming to the library was to browse, not to look for any specific book by author or title.

The studies on browsing tend to center on the question of whether specific book displays or book lists will positively effect the rate of circulation, and if so, what displays or lists are the most effective. Elizabeth Mueller, as cited in Baker (1986), conducted the first major study concerning book displays in 1965 when she studied the circulation patterns of old and new non-fiction titles in six public libraries in the United States. She concluded that if the library will make a special display of new books, their circulation will more than double.

Herbert Goldhor (1972) provided information on book displays and browsing through two separate studies that agree with Mueller's findings. His first study was done in two phases in 1969 and 1970 in two Illinois public libraries, and the second in a Jamaican public library in 1978 and 1979. He hypothesized that adults borrow books from the library mainly as a result of browsing, and whatever makes browsing easier will significantly increase circulation.

The data for the first study were collected during a

year at the Champaign and Urbana Public Libraries. Phase 1 of the study took place from November 1, 1969 to April 30, 1970 and was conducted at the same time and in the same way at both libraries. In phase 1 the titles were left in their usual shelf locations, with no special display. Phase 2 covered the next six month period and was conducted essentially the same as in Phase 1, with the one essential difference being that the Champaign Public Library put all the adult copies of the titles in question in a book display just inside the door of the library and near the circulation desk. The titles that made up this display included 55 novels and 55 non-fiction books. The results of the study showed that circulation of the specially displayed titles increased by 113% while circulation of the other titles declined by 11% (p. 376).

Goldhor's second study was done in 1978-1979 in a Jamaican public library. The experimental period lasted for three months and included book lists as well as book displays. One hundred fifteen adult biographies which had circulated the least of any of the total collection of adult individual biographies were chosen. Chosen titles were then randomly assigned to three individual groups. Group 1 titles were displayed near the circulation desk. Group 2 books were listed on a book list that was automatically placed in the books checked out by 1,000 adult patrons and also left in the library for those



wanting to pick up one. Group 3 books were the control group with no change in their usual shelf location or promotion. The results of the study showed that the circulation of the displayed books increased seven times, circulation of the booklist titles increased four times, and circulation of control group titles remained unchanged (p. 320).

Baker (1986) has done studies of the most optimal ways of displaying or promoting titles to increase their circulation, and she also has been interested in the related topic of information overload. From her synthesis of other's research, and her own research, Baker identified three characteristics of browsers:

1. they directly approach the library shelves to look for the material they desire, rather than searching first through the library catalog.
  2. they are not looking for specific material, but rather for any material which will satisfy their information need.
  3. they are open to influence from many factors
- (p. 315).

Baker reasons that especially for browsers, who are looking for one or two books on shelves that may contain hundreds of possibilities, the potential for information overload is great. Trouble arises when a collection becomes too large to be easily scanned. This causes

patrons to develop strategies that somehow limit the amount of material from which they must choose. Baker states that librarians should adopt strategies to help patrons cope with this information overload which may result in overall greater library use (p. 318).

The literature to this point reaffirmed the researcher's belief that the integrated shelving of adult and juvenile non-fiction is beneficial to the browsing patron. While reading the Baker research on browsing and information overload, however, the first reaction was that it went against this study's hypothesis. By separating the adult and juvenile sections, one is narrowing the selection for the user and so is making a browsing selection easier for the user.

As the reading continued on Baker's research, however, less and less of a conflict was perceived. Baker cites the research of James Engle and Peter Wright. Engle believes there are four steps involved in consumer information processing:

1. he must be exposed to the item.
2. it must capture his attention.
3. he must comprehend what the item really is.
4. he must retain the information to use in his selection process (p. 324).

Peter Wright's emphasis is on time; consumers (or patrons) who are limited in time cannot process information

or make choices as well as those who have more time to spend. This means that if we are simplifying a collection for the patron's convenience, we should not require a patron to spend more time using the collection. If a patron has to go to two separate areas of the library to browse through the juvenile and adult non-fiction, this will be time consuming. If the patron chooses only one of the areas, he or she will be missing material that may be appropriate. Baker also states that more studies need to be done to make sure that if we narrow patrons' choices we also are not narrowing their satisfaction with the choices.

Much research is available in the literature about the learning skills of children and the different ways that children process information. The following generalizations might be applied to this study's hypotheses about the intershelving of non-fiction:

1. Effective learning comes from a willingness and an ability to face problems and seek answers.
2. Effective learning involves making judgements and decisions.
3. Effective learning is flexible but not necessarily speedy.
4. Effective learning comes from thought-provoking and discovery-prompting situations (McVitty, pp.10-12).

Consensus in the literature also reveals that a fascinating range in individual differences in learning exists. Each learner, no matter what his age, will differ in the amount of knowledge he brings to each new learning experience. The talented 5th grader who reads at the 12th grade level should have a wide range of non-fiction books from which to choose. If he is limited to the choices of a strictly juvenile non-fiction section, the library will not be meeting his learning needs.

The reverse situation is the adult patron who may read at the 5th grade level, or below. The problem of adult illiteracy has been very visible in the academic and popular press during the last few years. The Louisiana Department of Education sponsored a study in 1982 titled Libraries: a Discovery for Adult Learners which concentrated on how public libraries might best serve undereducated adult learners. One of the objectives in the study was that the public would become aware of the materials (such as high interest, low reading level) that libraries owned which would appeal to adults who read at a low level.

The study also lists many characteristics of the undereducated adult. The ones that are listed here especially relate to how these adults might react to having to go to the juvenile section of the library to find materials they might want to read:

1. Lack of self-confidence
2. Weak motivation
3. Unusually sensitive to non-verbal forms of communication
4. Hostility toward authority
5. Varying levels of intelligence
6. Reticence--have difficulty expressing their needs
7. Tendency to lose interest (pp. 36b-36c).

The Louisiana study, as well as other books, list general works that may be especially appropriate for adults with reading difficulties.

Many indirect arguments can be found to help in supporting the prediction that the intershelving of non-fiction books will be a positive influence on the use of both adult and juvenile non-fiction books. The related areas of the literature reviewed included browsing, information overload, and the cross selection that gifted children or illiterate adults might make. But there was no specific literature that gave information about the intershelving concept. For that specific concept new research needs to be conducted.

## Chapter 3

### Methodology

The researcher was the director of the Charles City, Iowa, Public Library for five years, although when the data for this study were collected, the researcher had moved to a new position. The Clear Lake, Iowa, Public Library was chosen as a comparison library because it is very similar in collection size to the Charles City Public Library. The two communities are also very similar in population size. Charles City has a population of 7,878, Clear Lake's population is 8,183. Both libraries have print collection holdings of between 40,000 and 45,000 volumes. The book circulation for each library falls in the range of 90,000 to 100,000 volumes per year.

These two small Iowa public libraries have similar roles in their communities: they emphasize their relationship to the children of their communities with pre-school storyhour and programs for elementary-age school children. Both libraries feature programming for adults, such as book discussion groups and special Friends of the Library programming. Both libraries also serve the students in their community who attend the North Iowa Area Community College, based in Mason City. In addition to having collections of similar size, the directors of both libraries have traditionally tried to purchase new

materials each year that fulfilled the popular reading desires of the library users.

The Clear Lake Public Library is open fifty hours per week, compared to 56 hours for the Charles City Public Library. Both libraries open at 10:00 a.m. on Mondays through Thursdays, and both libraries are open only during the afternoon on Fridays. Although the total hours open per week are similar, the weekend hours are quite different. The Charles City Public Library is open Saturday and Sunday afternoons while the Clear Lake Public Library is open all day Saturday but is closed on Sunday.

To collect the appropriate data at the Charles City Public Library and the Clear Lake Public Library, the researcher devised a form on which staff could tally manually the number of patrons who checked out non-fiction books. There were two separate forms for each day, and these were color-coded to allow for easier distinction. One form was used for tallying the number of juvenile non-fiction books checked out by adults, and the other form was used for tallying the number of adult non-fiction books checked out by juveniles. An arbitrary age of 13 was set as the dividing line between patrons considered juveniles and adults. This age of 13 or seventh grade has been cited in The Encyclopedia of Library and Information Science as the most common division between children and young adults (p. 366. v. 33).

In this study the library staff person was allowed to make the age judgement; patrons were not asked to show identification to determine if they were age 13 or older. Juvenile non-fiction books were easily identifiable in both libraries since both use the designation of "j" above the Dewey call number on the spine of the book to show that distinction.

The researcher made several personal visits to each of the libraries to acquaint the staff with the survey forms and to train the responsible person at each library. The person responsible for data collection at each library was the library director. That person then instructed their own staff members in the recording methods for the data. The staff person at the circulation desk actually recorded the circulation statistics as explained on the data gathering sheets. At both libraries, a preliminary trial data collection period was held so that the staff would be familiar with the survey method.

These daily forms were used for two weeks, beginning on Monday, April 12 and Monday, April 26. The week beginning Monday, April 19 was not used because it was National Library Week and programs would be occurring at the libraries that would make it an atypical week. Also collected from each library were their circulation figures for each day, especially their non-fiction circulation figures.



At the end of the two week period, the responsible person at each location mailed to the researcher the tally sheets for each day in the two week period. They also mailed the total non-fiction circulation figures for each day, with a breakdown for juvenile non-fiction circulated and adult non-fiction circulated.

## Chapter 4

### Data Analysis

The data gathered during this two week study show marked contrasts. Both libraries indicated they had days when no crossover effect was noted. On other days, however, the libraries had crossover statistics in the range of 15 - 20 circulations. The Clear Lake Public Library, which shelves non-fiction in two separate locations, had 56 items showing the crossover phenomenon, and these were about equally split between adult and juvenile non-fiction crossover. In contrast, the Charles City Public Library totaled 149 crossover items for the two week period, with almost twice as many juvenile non-fiction crossover books circulated to adults as there were adult non-fiction crossover books.

Table 1 shows the crossover data for the two public libraries. At the Charles City Public Library, which intershelves the non-fiction collection, 54 adult non-fiction books were checked out by juveniles. At the Clear Lake Public Library, 29 adult non-fiction books were checked out by juveniles. Although the Clear Lake Public Library was open two fewer days than the Charles City Public Library, the number of hours open per week was 50 and 56, respectively.

Table 1  
 Number of Adult Non-fiction Books Checked out by  
 Juveniles in the Two Public Libraries

Days	Charles City	Clear Lake
April 12	16	8
April 13	9	0
April 14	4	0
April 15	0	10
April 16	2	1
April 17	0	0
April 18	2	*
April 26	4	0
April 27	4	0
April 28	0	5
April 29	1	3
April 30	7	1
May 1	1	1
May 2	<u>4</u>	<u>*</u>
TOTALS	54	29

Note: \*Indicates library closed this day

The first hypothesis of this study was that the difference between the circulation of adult non-fiction books by juveniles would be at least 20% in the two libraries with different shelving arrangements. The actual difference in the study period was 30.2%, and hypothesis one is accepted.

The second hypothesis was that the difference between the circulation of juvenile non-fiction books by adults would be at least 10% in the two libraries with different shelving arrangements. Data in Table 2 indicate a difference of 55.8% instead of 10%. The Charles City

Public Library, with integrated shelving, circulated 95 juvenile non-fiction books to adults compared to the 27 juvenile non-fiction crossover recorded by the Clear Lake Public Library. Hypothesis number two is also accepted.

Table 2

Number of Juvenile Non-fiction Books Checked out by  
Adults in the Two Public Libraries

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Days	Charles City	Clear Lake
April 12	17	0
April 13	12	0
April 14	6	4
April 15	15	2
April 16	4	12
April 17	9	2
April 18	0	*
April 26	10	2
April 27	3	1
April 28	14	1
April 29	0	0
April 30	1	2
May 1	0	1
May 2	4	*
TOTALS	95	27

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Note: \*indicates library closed this day

The final hypothesis of the study concerned the total non-fiction circulation and how it might be effected by the method of shelving. The prediction was that the intershelving method would result in a difference of 15% in the number of non-fiction books circulating when comparing the two similar public libraries. The Charles City Public

Library, again exhibited some striking differences in the daily non-fiction circulation. The very first day of the study (Monday, April 12, 1993) resulted in 200 total non-fiction book circulations in Charles City, which was the highest one day non-fiction total for either library. The lowest daily total was also tallied by the Charles City Public Library, with 36 non-fiction circulations on the final Saturday of the sample period.

Table 3  
Total Non-fiction Book Circulation  
in the Two Public Libraries

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Days	Charles City	Clear Lake
April 12	200	62
April 13	149	70
April 14	116	88
April 15	98	143
April 16	41	94
April 17	53	62
April 18	60	*
April 26	107	48
April 27	89	92
April 28	183	90
April 29	85	96
April 30	55	76
May 1	36	42
May 2	<u>73</u>	<u>*</u>
 TOTALS	 1345	 963

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Note: \*indicates library closed this day

The Clear Lake Public Library exhibited differences in total non-fiction book circulation, but not as widely

variable as the Charles City non-fiction circulation. Their highest day of non-fiction circulation was 143 books on Thursday, April 15, 1993. The lowest day of non-fiction circulation for Clear Lake was also the last Saturday of the sample period. When analyzing these daily circulation figures, it is also important to remember that the Clear Lake Public Library is closed on Sundays, so all of their circulation is accumulated during only six days of each week. By examining Table 3, one can see that the difference in non-fiction circulation was actually 16.6%; the Charles City Public Library had a total of 1345 compared to 963 non-fiction circulations for the Clear Lake Public Library. Hypothesis number three is also accepted.

## Chapter 5

### Summary, Conclusions, Recommendations

Because of the various natures of the clientele of public libraries, their diverse reading levels, and information needs, this study was planned to analyze one specific item in the physical arrangement of public libraries -- the shelving of non-fiction books.

The traditional arrangement in Carnegie public libraries has been two floors: the bottom level for children's books and the upper level for adult books. Many of these Carnegie libraries, which were built in the late 1800's and early 1900's, are now being remodeled to fit the needs of the twenty-first century. If remodeling is not deemed practical, many communities are designing plans for new public library buildings to serve their needs.

The results of this study could offer practical help in one aspect of these new or remodeled buildings, that is, would it be better to shelve the children's non-fiction books in a separate area, perhaps with the children's fiction books? Or would a better approach be to shelve all non-fiction books, whether on a second grade or college reading level, on the same shelves?

The data collected in this study give a partial answer to this question. Integrated shelving of non-fiction books seems to increase circulation, and by offering a variety of

choices to patrons, gives them the option of crossing over to another reading level to meet their information needs.

One does have to remember that there may be other reasons for this difference in circulation of non-fiction: the patrons and their information needs may be different in the two communities, or one library may promote the reading of non-fiction material more than the other library. In regards to this study, the accuracy of recording the data may have varied between the two libraries, and the short time span of the study may have yielded incomplete results.

An interesting sidelight that the study results disclosed is the wide fluctuation of non-fiction book circulation within the same library from day to day. The Charles City Public Library varied from 36 to 200 circulations per day, while the Clear Lake Public Library varied from 42 to 143 circulations per day. The low figures were both on the same day, and one may speculate that a sunny Saturday in late April may be the reason for this low nonfiction circulation. But the variations in the other days are not explainable.

An even more specific circulation question that this study points to is the question of Sunday hours. Even though the overall hours open are very similar between the two libraries, does the distribution of days and hours open contribute significantly to some of the total non-fiction circulation figures that one finds? These are questions



that might be the focus of future studies.

More studies need to be done on the crossover effect, also, to see if other results are as similar to the results of this study. Collecting data in other public libraries throughout the country would be very beneficial in corroborating the data collected in this study. If possible, the data could be collected over a several month long period in the libraries to give a more representative sample of crossover circulations throughout the year.

The results of this study were quite surprising, not that the library with integrated shelving exhibited more crossover or more total non-fiction circulation, but in the extent of the differences. The percentages were much larger than the researcher expected. Further studies would be valuable to see if these differences exist elsewhere.

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