LOKAKARYA NASIONAL DOKUMENTASI DAN INFORMASI

INTERNATIONAL CONFERENCE ON DOCUMENTATION AND INFORMATION

PROSIDING

PROCEEDING

"The Development Of Knowledge Product In Litraries and Information Centers"
LIPI JAKARTA, SEPTEMBER 19-20th 2018

**INDONESIAN INSTITUTE OF SCIENCES
CENTER FOR SCIENTIFIC DOCUMENTATION AND INFORMATION
2018**

THE ANALYSIS OF THE INFLUENCE OF GENDER AND STUDY YEAR
TO THE STUDENTS' ACTIVITIES IN THE COLLEGE LIBRARY

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ABSTRACT

This research analyze the influence of gender and study year (independent) variables on student activities (dependent) in college library. Research location is at UPT Library of Andalas University. The source of research data comes from the number of visitors and book borrowing, which is recorded in the library database. To improve data validation, the period of the year is based on the academic calendar of the Andalas University. In addition, the data collection is limited only for 4 years, and solely for undergraduate students. Data processing utilizes descriptive and analysis of variance (ANOVA) statistical analysis. The results show 69.89% of borrowing transactions are conducted by female students, the remaining 30.11% by male students. For variable of study year, 42.2% transactions derived from the freshmen student, the remainder derived from the study year 2, 3, and 4. While for the number of visits, 59.1% were female students and 40.9% were male students. Based on the study year, the percentage of student visits for study years 1 and 4 was the highest compared to the study years 2 and 3. Overall, the freshmen and female students are more active in visiting libraries and borrowing transactions. The analysis result also shows that gender and study year significantly affect the number of visits and borrowing each year.

Keywords: *Library; Information science; Management database*

1. INTRODUCTION

The issue of gender is still considered sensitive and intriguing to be used as a research object. Various researches in different fields of study have been conducted on the gender difference. Either in social (Dhir et al. 2016; Shahriza Abdul Karim and Hasan 2007; Asher, Asnaani, and Aderka 2017), political ((Acar 2015; Alexis 2014; Pohan 2014; Rosen 2017), or cultural ((Bravo, Martínez, and Ruiz 2017; Popa and Bucur 2014; Shahriza Abdul Karim and Hasan 2007) fields of study. From the previous researches on gender, the researchers conclude that gender has a great influence on the subject analyzed.

Meanwhile, in the field of library science, there are only few researches to be found. Some of the researchers are (Lombard 2018), who studied the perception of library personnel on leadership based on gender in the academic library, (Sarwono, 2012) studied the achievement motivation and career acceleration of the professional librarians from the gender perspective, and (Nurhayati, 2001) The Influence of Gender Perspective on the Selection of the Reading Theme, (Ningsih, n.d.) studied the librarian orientation in selecting occupation based on gender. The three of them focused on the librarians' motivation and perception based on gender. Meanwhile, researches on the behavior of the library users based on gender are considered scarce. One of the conducted researches is a study by (Shahriza Abdul Karim and Hasan 2007) who tried to explore and understand the reading habits of college students to explore the differences of behavior based on gender.

The needs of library users on library services and facilities might be different for each gender, as well as for study year of the students. Each study year might have different tendencies on the university library service. Even in today's digital era, the needs and orientation of the library users have undergone a significant change. Most of the students who visit to the library is not solely for the purpose of borrowing some books, but to study independently and benefit from free Internet service. (Saputra, Budiarti, and Dardanelen 2017).

To understand more about the needs of library users, researches on library user behavior are required to be conducted by analyzing the influence of gender and study year on the students' library activity rate measured by the parameter of total visit and borrowing transactions. The result will contribute to the implementation of the user-oriented services. Kim (2016) thought that academic library users have a different perception, as well as different needs to the library services. Therefore, the understanding of user behavior needs be improved to establish a user-oriented spatial planning.

Gender difference will affect the type of library services, facilities, and spatial planning since the service characteristic provided is different for male and female students. Including the study year,

the needs of library services for the freshmen and the seniors students are different. The freshmen students are more likely to make library transactions, such as borrowing some supporting textbooks. Meanwhile, the seniors students are more likely to study independently and search references for their final task in the library.

2. RESEARCH METHOD

The research about the analysis of the influence of gender and study year on the visit and borrowing rate in the college library was conducted in the Library TPU of Andalas University. The data sources were taken from the database of visitor transactions and book borrowing in the last 3 years (2015 to 2017), which is recorded in the database. The Library TPU of Andalas University has utilized the computerized system in managing the library database since 2013. To collect the data of the research, such data were grouped based on the academic year, since the beginning of the odd semester to the end of the even semester. In Andalas University, the academic year starts in August and end in July the next year. The sampled data was taken solely from the borrowing transactions data of academic year of 2017/2018 for the reason that based on the annual report of Library TPU of Andalas University, the average of transactions in the last three years is almost similar. The data is limited to the transactions of the students enrolled in the last 4 study years (2014 to 2017) and only for the students in the bachelor program because this study will only analyze the influence of gender and study year. This decision was taken because of the significant difference between the bachelor program transactions and other academic program transactions. The bachelor program transaction reaches 93%.

This research uses the quantitative method. The statistical instrument used is the descriptive statistic to collect and group the data. Meanwhile, the relationship between the gender and study year variables and the total visit and borrowing transactions is analyzed by using the *Analysis of Variance (*ANOVA), which is a method used to analyze the relationship between a dependent variable with one or more independent variables (Ghozali 2013). SPSS is used to process the data. The hypotheses below are used to find out whether the gender and study year variant do make an influence:

H0 : the gender and study year variables influence the library visit and borrowing rate.
HA : the gender and study year variables do not influence the library visit and borrowing rate.

Based on aforementioned hypotheses, it is concluded that:

If the probability is < 0.05 then H0 is accepted, so gender and study year significantly influence the total visit and borrowing rate.

If the probability is > 0.05 then H0 is rejected, so gender and study year do not influence the total visit and borrowing rate.

The probability number resulted may be seen in the significance column of the influence of the independent variable to the dependent table analysis result table.

3. RESULT AND DISCUSSION

To analyze the influence of gender and study year on the total borrowing, supporting data is needed as reference and comparison to the variable statistic analysis that becomes the analyzed object. The supporting data is taken from the statistics of library visitor, consists of the data of total member based on the gender, total active visitor, total borrowing, borrower graphic based on the academic program, and the monthly borrowing graphic to improve validity value, data were provided from the last 3 years (2015 to 2017).

3.1 Collection Borrowing Statistic

Based on the annual performance evaluation report of Library TPU of Andalas University (2018), that 41% of the active members are male students and 59% are female students. In the borrowing statistics data, total transaction per year and active members who made borrowing transaction in the last 3 years, and the result can be seen the Table 1.

Table 1. The total of borrowing transaction in the last 3 years.

Year	Transaction Total	Active Members
2015	63.221	9.495
2016	69.073	9.503
2017	65.402	9.380
Average	65.899	9.459

Table 1 shows the average of the borrowed collection in Library TPU of Andalas University in the last 3 years are 65.899 exemplars per year. The collections were borrowed by 9.459 members. The library performance evaluation report shows the data of collection borrowing based on the academic program. As shown in Picture 1, from the 4 academic programs in Andalas University (D3 (Diploma), S1 (Bachelor), S2 (Master), S3 (Doctorate)), the majority of the transactions come from the Bachelor program (92,35%). The rest is divided into the other programs.

Picture 1. Graphic of borrowing based on academic program

Based on the transaction data shown in Table 1 and Picture 1, there is no significant change in total transactions and total active members for the last 3 years, and significant difference on total transaction made between the Bachelor program and other programs. Therefore, the sample analyzed in this study is solely taken from the borrowing transaction data of the Bachelor program in the last one year.

As a comparison to analyze the relation between study year and the collection borrowing rate, a monthly library collection borrowing graphic is required. The data provided is the transaction data in 2017, because it was taken from the library performance evaluation report of 2017. The result is shown in Picture 2.

Picture 2. Graphic of monthly collection borrowing of 2017

As seen in Picture 2, collection borrowing transaction is significantly increased on August, which is the beginning of the odd semester/academic year in Andalas University. Twenty percent of the total transactions in 2017 made in August, while in other months only reaches as high as 12%.

3.2 Borrowing Transaction Analysis

From the total of 65.402 borrowing transactions made by 9.380 students in academic year of 2017/2018, 6.968 students are taken as the sample. It is taken from all transactions made by students of Bachelor program in the last 4 study year (2014 to 2017). The *compare means* statistic method is used to calculate the average subgroup and dependent variable univariate relation (total borrowing) and categories in the independent variable (gender and study year). Based on the gender, from the 6.968 samples of borrowing transactions made by the students in academic year of 2017/2018, most of them (69,889%) are female students, the rest 30,4% are male students (Table 2). From the borrowed collection, where 55.242 transactions were made, 72,1% are by female students and 27,9%

are by male students. The mean column shows that the female members are more active in borrowing collection than male members, with the average of 8,21 versus 7,28 for each person in one year.

The study year variable statistic analysis, the result is shown in Table 3. From 6.968 students who made borrowing transactions in 1 year, 39,3% of them are the freshmen (year 1). Meanwhile, the total transaction reaches 42,2%. The graphic of collection borrowing based on study year is shown in Picture 3.

To analyze the relationship between independent variables (gender and study year) and the average of collection borrowing, univariate analysis is conducted through *analysis of variance* (ANOVA). The result is shown in Table 4. The analysis of the influence of gender factor on the students' borrowing total, resulted in F with the total of 20,498 and significant in 0.05. This indicates that the gender variable affects the total average of library collection borrowing. The same thing applies to the study year which is resulted in F with the total of 17,568 and is significant in 0.05, which also indicates the difference average in each study year. The result is supported by the mean value difference in each variable. Table 4 shows that the mean value of the female students is 8,21, which is higher than the male students, which is only 7,28. Table 3 shows the study year mean value, which is between 6,38 and 8,50. The year 1 students have the highest average number.

3.3 The Analysis of Visitors

Based on the Library Performance Evaluation report of 2017, there are 21.958 students who actively visit the library during the academic year of 2017/2018. After conducting selection based on the same criteria with the borrower data, samples of 15.344 students were collected in the bachelor program. Then the samples are analyzed using the *compare means* method to calculate the average subgroup and the dependent variable univariate relation (total visit) with the independent variable categories (gender and study year). The result is shown in Table 6, where 58,1% of visitors are male students and 41,9% are female students. There is an increase in female students total visit to 64%, compared to the male students which is only 36%. This increase occurs because the average female students visit is higher than male students, which is shown in the mean column, with the number 22,92 compared to 17,87 (Table 5).

The result of the analysis of visitor statistic based on study year is shown in Table 6. It is also shown that the most visitors are from the students of study year 1, that is 29,4% of the total visitor, followed by study year 4 (25,1%), study year 2 (24,3%), and study year 3 (21,1%). The percentage of total visit of students of study year 1 is far higher, that is 44%, while the percentage of the students of study year 4 decreased to 15,4%, the lowest of all groups. It is because the average of the total visit (mean) of the students of study year 1 is the highest (31,12), and the mean of the students of study year 4 students is the lowest of all (12,71).

The next step is to analyze the univariate by using the *analysis of variance* (ANOVA) to analyze the relationship between independent variables (gender and study year) to the average of students visit. The result is shown in Table 7. The analysis of the influence of gender factor to the total visit is resulted in F with the number 227,3 and is significant in 0.05, which indicates that gender affects the average of total collection borrowing. The same thing applies to the study year, which is resulted in F with the number of 422,822 and significant in 0.05, which also indicates that study year affects the average of students' library visit. The result is supported by the difference of mean significance of each variable. Table 4 shows that female students mean is 22,92 points higher than male, which only has 17,87. Table 6 shows the class mean value ranges from 12,71 to 31,12. The student of study year 1 has the highest average number.

3.4 Discussion

The Library TPU of Andalas University report stated that there are more female active members of The Library TPU of Andalas University than the male (59% - 41%) (Perpustakaan Unand 2018). However, the statistic analysis result of the collection borrowing shows that the percentage of borrowing transactions made by female students is far higher than the population, increasing from 59% to 72,1%. This indicates that the female students are more active in borrowing the collection than the male students. Based on the study of Jude D. Gallik (1999), reading interest on female students is higher than males, supported by Shahriza Abdul Karim and Hasan (2007), who stated that male students read significantly more on the sources other than academic books, such as newspaper, website, and literature. The same thing applies once analysis is conducted to the average of borrowed collection in one year, where a significant difference between male and female students is found. This also applies to the analysis of total visitor, where a significant difference is found in the influence of gender to the total library visitor, even though the percentage is not as high as the borrowing

transaction percentage.

In the section of the influence of study year on the collection borrowing transaction, from the 4 study years analyzed, the result (Table 3) shows that the students of study year 1 are the most active of them. The result of the analysis of the relationship between variables also shows a significant difference in each study year. The total of students' borrowing is decreased, concomitant with their study period, as shown in Picture 3. The high number of the transaction of students of study year 1 is also shown in Picture 1. It is shown that 20% the borrowing transactions in the Library TPU of Andalas University made in August, the highest of all months. As additional information, the academic year in Andalas University starts in August each year. The low number of the total transaction made by senior students (year 4) students, who are currently writing their undergraduate thesis, is unusual. Usually, they would need a lot of references. From some researches on students' undergraduate thesis citation, it is found that the majority of literature cited are from books (Guninda, Rukiyah, and Christiani 2015; Nurochman et al. 2018; Hadi and Kurniawan 2014).

Slightly different from the borrowing, the result of the analysis of total visitor does not show the students of study year 1 significant domination, even though the visit percentage is still the highest of all groups. Besides, there is a rank difference on total visitor, where the students of study year 4 have more percentage than the students of study year 2 and study year 3 (Picture 3). The difference between the total visit percentage and total collection borrowing is affected by the changes on the visitor's orientation to come to the library. According to the study of (Saputra, Budiarti, and Dardanelen 2017) that the visitor's majority purpose to come to the library in this digital era is to study independently, not to borrow some books. The great difference between the students of study year 4 (senior) visit percentage and the collection borrowing percentage (25,1% - 10,9%) indicates that some of them come to the library to study independently. They choose the library as the place to finish their final task.

Table 2. The statistic of collection borrowing based on gender

gender	Mean	N	Std. Deviation	Sum	Variance	% of Total N	% of Total Sum
Female	8.21	4852	8.179	39838	66.889	69.6%	72.1%
Male	7.28	2116	8.679	15404	75.325	30.4%	27.9%
Total	7.93	6968	8.344	55242	69.624	100.0%	100.0%

Table 3. The statistic of collection borrowing based on study year

year	Mean	N	Std. Deviation	Sum	Variance	% of Total N	% of Total Sum
1	8.50	2739	8.431	23285	71.077	39.3%	42.2%
2	8.15	2005	9.161	16337	83.931	28.8%	29.6%
3	7.50	1278	8.159	9584	66.570	18.3%	17.3%
4	6.38	946	5.977	6036	35.720	13.6%	10.9%
Total	7.93	6968	8.344	55242	69.624	100.0%	100.0%

Table 4. The result of the examination of gender and class influence to borrowing average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4911.060ª	4	1227.765	17.804	.000
Intercept	281036.244	1	281036.244	4075.451	.000
tahun	3634.331	3	1211.444	17.568	.000
gender	1413.478	1	1413.478	20.498	.000
Error	480156.774	6963	68.958		
Total	923024.000	6968			
Corrected Total	485067.834	6967			

a. R Squared = .010 (Adjusted R Squared = .010)

Table 5. The statistic of visitor based on gender

gender	Mean	N	Std. Deviation	Sum	% of Total N	% of Total Sum
0	22.92	8907	27.507	204155	58.1%	64.0%
1	17.87	6436	27.808	114998	41.9%	36.0%
Total	20.80	15343	27.745	319153	100.0%	100.0%

Table 6. The statistic of visitor based on class

year	Mean	N	Std. Deviation	Sum	% of Total Sum	% of Total N
1	31.12	4510	32.816	140347	44.0%	29.4%
2	21.41	3735	27.827	79983	25.1%	24.3%
3	15.37	3242	23.024	49830	15.6%	21.1%
4	12.71	3856	19.826	48993	15.4%	25.1%
Total	20.80	15343	27.745	319153	100.0%	100.0%

Table 7. The result of the examination of gender and class influence to the total of borrowing transaction

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	990220.543[a]	4	247555.136	350.922	.000
Intercept	5662432.193	1	5662432.193	8026.778	.000
gender	160347.071	1	160347.071	227.300	.000
tahun	894830.626	3	298276.875	422.822	.000
Error	1.082E7	15338	705.443		
Total	1.845E7	15343			
Corrected Total	1.181E7	15342			

a. R Squared = .084 (Adjusted R Squared = .084)

Picture 3. The comparison of total borrowing and total visitor per class in 2017

5. CONCLUSION

After the analysis of the relationship between gender and class to students' library activity rate is conducted, it is concluded that female students are more active in the library than male students. The total visit percentage and collection borrowing surpass the total population. It is also concluded that the students of study year 1 are more active than other study year. Their enthusiasm to visit the library and borrow some collection is high, but decreased afterwards. Some studies show that books are still considered as the primary reference in writing the undergraduate thesis. Even though the borrowing percentage of the seniors is the lowest, the total visit percentage of them is surprisingly high. They make the library as a place to study independently rather than to borrow some books. It is concluded that gender and study year significantly affect the average of total student visit and collection borrowing in the Library TPU of Andalas University. The result needs to be followed up by reviewing the citation analysis of the undergraduate theses of Andalas University students, and the senior's motivation to visit the library, besides the analysis of the influence of other variables on students' library activity, such as economic factor and demography of students.

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