

AN ANALYSIS OF PUBLIC LIBRARIES' USAGE AND ITS EFFECT ON REGIONAL DEVELOPMENT THROUGH IMPROVING THE QUALITY OF HUMAN RESOURCES

Ahmad Ridwan Siregar

*(Department of Library Science/Universitas Sumatera Utara (USU) /Indonesia/+62
618215956/ridwan@usu.ac.id)*

ABSTRACT

This paper aims to address a question whether location, location supporting infrastructure, demographics characteristic, physical specification, library operational, and users motivation have influence on the public library use, and whether the public library use has impact on enhancement of human resource quality in a region. This study used is explanatory method using a survey to explain relationship between the tested variables. 351 samples were collected by accidental sampling from users of two libraries i.e. Public Library of Medan city and Provincial Public Library of North Sumatera, Indonesia. An instrument was designed with 109 questions to gather data on 8 variables with a total of 59 indicators. The closed question uses a 5 point Likert scale. The validity and reliability tests were done, while the descriptive and inferential statistic analysis were used as the technique of data analysis. Using a Structural Equation Modeling (SEM), five out of six independent variables tested and found have significant influences to the public library use namely; location, location supporting infrastructure, physical specification, operations, and users motivation, however the demographic characteristic variable has no significant influence. While, the public library use variable shows a significant influence to the enhancement of human resource quality in the region. Maximizing public library role to enhance human resource quality in a region may be carried out with pay attention to some factors that have role as determinant of a library's success. In regards of public library's planning, the government whom responsible of taking care the public libraries interests, should take attention to the library location that has acceptable distance or travel time to community residence; library has attractiveness both in physical building specification and quality of services provided; and demographic factor and user motivation should be taken place as a basic in improving public library role. Spatial based public library should be included as a component in a city planning.

Keywords : Regional Development, Human Resources Quality, Public Library Use, Public Library Location, Users Motivation and Location Supporting Infrastructure.

1. INTRODUCTION

In developing countries, the role of the library has not been sought maximum to support the improvement of human resources' qualities and creating social capital (Varheim, 2008) especially in urban environments while in developed countries, it is seen as one of the important institutions that play a greater role in community empowerment. The human development can not be separated from the aspect of education or human capital. Education is the engine of growth (Olaniyan and Okemankinde, 2008) while the human capital uses as the driving force of economic development (Florida et al. 2007) which been conceptualized becomes one of the main theoretical directions in the field of economics, sociology and management (Abeltina, 2008). Calcuttawala (2004) mentions that the library gained renewed importance in the cities in many post-industrial Western countries. Library used as an important part of knowledge infrastructure that contribute to the intellectual and cultural environment as well as one of the factors of attraction for business, investment and professional workforce. When the library is not functioning properly, information and knowledge will be noticeably more expensive, especially for low-income people who constitute the largest proportion of urban population which occur in Indonesia today.

To enhance the role of public libraries, there are a number of factors need to be considered particularly to increase accessibility in society. Provision of library facilities that were good and easily accessible by all citizens will be increasingly important with regard to the challenges of globalization which demands competitiveness.

Public library facility location selection is the most important decision made by city planners. A mistake in the choice of location or meant a decrease in access and usage (Palmer, 1981). In addition to the location and the infrastructure to support the location, the usage of library is also supported by other factors such as physical specifications, demographic characteristics of users, operational and users' motivations (Seppala, 1997). While the city's public library system varies greatly depending on the environment. A large city usually has a main building and a number of branches in a number of centers. In contrast to a small city, the library services provided at one location. For example, Singapore with a population of about 5 million people have a city's public library system is at 39 locations (National Library Board Singapore 2008), and New York with approximately 20 million residents are served by a public library system located in 200 locations (Japzon and Gong, 2005).

A phenomenon occurs in a number of developing countries including Indonesia found that the public libraries are less developed as it is not included as a component in the planning of urban areas. Although the city has developed rapidly, but the library system almost unchanged. Thus, the insufficient number of libraries could not serve the community. In addition with the above situations, the Indonesian people perceived that they do not see the importance of the public library location factor for optimal service performance and the pivotal role of public libraries in improving the quality of human resources. Thus a question arised, what factors to be considered in the planning of a public library location to increase it's usage by the population and its relationship with the regional development.

2. LITERATURE REVIEW

2.1 Theories and Concepts of Regional and Community Development

The theories of regional development adheres to various principles or basic that suit the application purpose of each theory. Szajnowska-Wisocka (2009) made an overview of various theories and concepts are often applied in the context of regional development which are divided into two categories, namely (i) classical concept of regional development; and (ii) endogenous regional development concept.

The classical theory consists of basic economic concept, new theories of trade, production theory, growth centers concept, core and periphery model, networking regional innovation concept, theory of production cycle, theory of production flexibility, and theory of industrial clustering. Meanwhile, the concept of endogenous regional development emerged in the last decade of the 20th century, which calls as the alternative development concept emphasizes the importance of social development, growth of human capital, and role of local communities and their activities in the regional development (Szajnowska-Wisocka, 2009).

The new concept is a response to the limitations of the classical theories of regional development that supported by the facts as revealed in a number of subsequent studies where changes in the technology itself is not explaining economic growth. Therefore, the endogenous development concept is an attempt to correct these theories by proposing a model in which the impact of long-term growth as an endogenous variable in the model, based on assumptions related to the investment in human capital and technology.

In relation to the description above, it concludes that the regional development can use a variety of approaches, theories or concepts that exist in a several disciplines to analyze related issues. The theoretical approach can use both classical theories which are commonly used as well as the endogenous concept that more emphasis on social development, human capital growth, role of local communities and their activities in the regional development. Szajnowska-Wisocka (2009) mentioned the characteristic feature of this approach such as economic growth based on the creation, enhancement and use of internal resources.

2.2 Regional Development and Improvement of Human Resources

The regional development has a broad sense, but in principle it is an effort made to improve the welfare of living in a region. Jayadinata (1992) defined the regional development is an action to develop a region, area or zone to attempt in improving the welfare of the community, or to promote and improve something that already exists. While, Zen (2001) stated that the regional development is an attempt to empower a community located in a region to exploit the natural resources using technologies that are relevant to the needs and aims to rectify the quality of people's life.

Nachrowi and Suhandoyo (2001) suggested that human resources with sufficient ability are able to mobilize all resources in the existing areas. They added, the human resources have a dual role in a development process which further known as human development. The importance of knowledge in human life used as the only reliable source for the achievement of competitive advantage. As the public service that is open to all communities, a public library has key roles in collecting, organizing, and using information and knowledge. It provides an access to information resources and knowledge. The public library acts as a gateway to knowledge, provides a basic condition or environment for lifelong learning, independent decision-making, and cultural development of individuals and social groups.

In relation between development and human resources, Zen (2001) posited that the development is not a state that is determined by what is possessed by humans, but as the capability set by what they can do based on what they have to improve quality of human beings. Zen (2001) added that understanding the resources does not refer to an object or substance, but rather refers to a function had been able to do in an activity. Nachrowi and Suhandoyo (2001) asserted that the regional development has three important factors that must be considered, namely natural resources, human resources and technology known as the pillars of regional development. A region that has rich natural resources and superior in human resources which have a capacity in the technology field, will grow faster than other regions.

The efforts to improve the quality of human resources not in spite of the availability of educational facilities both formal education institutions such as colleges or schools or other institutions such as training centers and libraries where the public can obtain information and knowledge to improve their competence in various field they pursue respectively. The relationship of the importance of the role of libraries in the regional development also raised by Hoover and Giarratani (2009) states that the library should be included in the list of public services as the needs of metropolitan regions which should be provided by a municipality.

Brata (2002) states that there are two-way relationship between human development and regional economic development in Indonesia. The quality of human development supports economic development and vice versa. But in each of this relationships is also accompanied by influence of other variables. Therefore, economic development must not disregard human development which will reduce regional disparities and improve the quality of human capital. Ary (2001) added that the human factor is a major factor in economic development. He mentioned that there were close links between education and income derived by a workforce. Therefore, the quality of human resources in the regional development needs to be improved.

A region or city should be a place for people to acquire facilities and skills for sustainable living. It has also become an important link between members of the public and government, between citizenship and democracy. Urban sustainability includes improved quality of life for city residents, justice for all, and reduce poverty.

2.3 The Role of Libraries in Improving Quality of Human Resources

The public library has been known as one of the important institutions of public services, especially in urban areas of developed countries. NESF (2006) identifies three pillars of the public library, namely a resource of information and learning for culture and imagination. The existence of the public library is maintained because of its functions relating to the public interest (Sulistyo-Basuki, 1993). It is defined as an organization established, supported and

funded by the community locally or regionally, or a variety of agencies which generally provide an access to knowledge and information include the resources and services distributed equally to all members of society regardless of race, nationality, age, gender, religion, language, disability, economic status and occupation, and level of education (Gill, 2001).

The role of libraries in the field of education has been proven through various studies conducted by the University of Minnesota and the Gallup Organization in the United States in 1994. The results indicate that the role of public libraries increasingly imperative in communities with lower levels of education and income. The main role of the public library was created in the rankings based on the answers of the respondents as follows; (i) as an educational support center for students of all ages (88%); (ii) as a center of learning for adults (85%); (iii) as a center of learning and discovery for children of pre-school (83%); (iv) as a research center for scientists and researchers (68%); (v) as a hub for the societal information (66%); (vi) as an information center for the business community (55%); (vii) as a pleasant place to read, think or work (52%); and (viii) as the center of the recreational reading (51%).

Other roles of the public library as an agent of change in developing community capacity to trigger economic activity. The Urban Institute (2007) states that a shift in the role of public libraries from a passive institution to an intermediary active in local economic development. It was also posited that the open structure along with new strength of digital collection used as education function, made the public libraries able to help people in the transition from a manufacturing and service economy to the high technology and information (Japzon and Gong, 2005). This role is increasingly valuable, especially for a society that is economically classified as incapable. Urbanization economies will also occur if public libraries can act as an agglomeration support at various locations (Adisasmita, 2005).

2.4. Location Facilities and Public Library

One important factor to enhance the role of the library is to provide library services or facilities to the population. This relationship has been shown to result in increased use of the library. In other words, the location became the determining factor for the level of use of public libraries. The location of the facility include the location of educational facilities such as schools and libraries. Placement facilities are generally carried out in relation to the demand and supply point.

Location theory was formally introduced in the 19th century by Von Thunen, concentrating mainly on the location of the various different types of agriculture. Then at the beginning of the 20th century, Alfred Weber discusses a single warehouse location to minimize the total travel distance between the warehouse with a number of customers spread spatially. Finally, the location theory follows two paths. Economists follow Von Thunen and concentrate on explaining the spatial behavior of economic activity, such as housing or the flow of goods to the subject of consumption, while the researchers in operations research field followed Weber. According to Seppala (1997), both lines can be regarded as descriptive and normative approaches. Descriptive model to explain why a certain type of spatial behavior takes place, and the normative model provides guidance to decision makers for the location decision. This difference was not entirely exclusive because there are some models that are used in both aspects.

2.4.1 Location Facilities Model

Facility location can be nested to the location of the private and public sector locations. This grouping is based on the destination of the location where private sector is for efficiency and profits in various forms, while public sector is for fairness and efficiency. Church and Revelle (1976) states that one important factor in measuring effectiveness of a facility location is determined by the average distance between user's location to the location of the facility. If the average trip distance users to the location of a facility increases, the accessibility of the facility will be decreased so that the effectiveness of the use of the facility will be decreased. The relationship phenomenon occurs in facilities such as libraries or schools which desired to be closely located.

In measuring effectiveness, some authors measured the distance between the point of the user with the facility for each user and calculates the total travel distance between users and facilities. P-median used to measure the effectiveness of the search for the location of a number of "p" facility, which then the total travel distance between users and facilities will be minimum. However, P-median is not suitable to be adopted because only measures the average distance.

To determine the location of the facility, the theory of affordability is often used. The demand will be covered if a facility can reach users in a specific amount of time. Affordability problems are divided into two main sections, one discusses about the area where the need for accessible and optimization. Two issues of affordability is divided into *location set covering problem* and *maximal covering problem*. The objectives of *set covering problem* is to minimize the cost of the facility location. All models in the *covering problem* implicitly states that if the demand met by the available facilities, the facility will be to serve the demand. Another is called as *center problem*, known as *minimax location problem*. Minimax location problem is the classic form of a combination of optimization in operations research and location of the facility. The *center problem* is useful to minimize the maximum distance between the demand and the facility closest to the request. This approach is useful to close the gap between the customer who is located farthest to the nearest facility.

In relation to a dynamic location, Daskin and Owen (1998) divides into two dynamic locations categories namely; (i) a dynamic model of a single facility location; and (ii) a dynamic model of multi-facility location. The dynamic single facility location model was first introduced by Ballou in 1968 that explains how to put the warehouse to maximize profits through a particular plan. Ballou receipts deterministic *dynamic optimal* solutions. Ballou's approach is optimized by Sweeney and Thatam (1976) and found a rank order (R_i) of best solution. However, Ballou, Sweeney and Thatam not consider the cost as variable constraints. Welowsky (1976) suggested to include the cost factor as a variable constraint in making facility's relocation decision, especially in an emerging region whereby an increasing number of population, the location of existing facilities must have a minimal cost (Drezner and Welowsky, 1991). Meanwhile a model of multi-location dynamic facilities mentioned by Scott (1991) is an extension of a dynamic model of single facility location.

In addition to deterministic static and dynamic location, one known is stochastic location. Location stochastic divided into two parts namely; *probabilistic* and *scenario planning approach*. Probabilistic approach is the location of the facility considered the probability distribution model with random quantity. Probability models divided into two standard formulations developed by Manne (1961) and a queuing model introduced by Larson (1974), while the scenario planning is a model that was developed in which decisions are taken based on the uncertainty of the future. Therefore, it needs to make a plan for the future in the form of scenario planning through trend analysis (Mobasheri and Sioshansi, 1989).

2.4.2 Location of Public Facilities

The fundamental issue in the location of public facilities is the nature and cause of the relationship between the location and it's distributive consequences (Dear, 1974). It is a decision to distribute certain benefits and costs among different groups of people. The benefits and disadvantages are often linked to proximity, which made of being a function of demand distance point for the facilities (Harvey, 1973).

The context of a public facility location model has different requirements compare the criteria in the private sector (Dear, 1974). The criteria of a public facility location problems encountered on the need for justice, which is as important as the efficiency of the impact on the location selection, lack of competition in provision of services, the need for public accountability, and public involvement in decision-making. Efficiency is a value to minimize the aggregate cost of movement in one particular space systems (Harvey, 1973). While in public sector, the principle of fairness and efficiency as the goal of the system of public facilities often lead to conflict (Truelove, 1993). Problems in private sector concentrate on the structure and location of individual units, while public sector concentrates on the theory

generally deal with multiple locations on a single system dynamic framework (Dear, 1974).

Furthermore, Dear (1974) identifies some common characteristics associated with the facility location problem such as; i) the importance of attention to public goods or on the welfare principle of redistribution of resources to the community; ii) the hierarchical nature of the system of public facilities. This hierarchy may be realized in relation to the building (one main library/large center and several smaller branch libraries).

In the classical approach to the location of public facilities, it is assumed that the demand for the services offered by the facilities is been available. The aim is to put the facility to meet existing demand (Daskin, 1995; Current and Schilling, 1990; Revelle and Eiselt, 2005). The decision of location based on the spatial distribution of the population, not based on population size. Facility location decisions based on demographic character could be overlooked when decisions are made to the facility have no great impact (Antunes and Bigotte, 2003).

The proximity (distance and travel time) is a fundamental aspect of location analysis. Many models which seek to minimize the distance and time between customer and facility in which a service can be obtained. As a counterpoint to this model, a *covering model* is introduced which based on the concept of *acceptable proximity*. This covering model can be classified based on several criteria the type of target (Marianov and Serra, 2004); i) to minimize the number of facilities required to fully cover the population (set covering model); ii) to maximize the population covered, with a limited number of facilities or servers (maximum covering models).

Selecting a location for providing a service with a number of limitations is the important logistics activities in various contexts. Decisions about the location of the facility is a crucial element in the strategic planning of both private and public institutions (Daskin and Owen, 1998).

2.4.3 Location of Library Facilities

The mistakes in the choice of facility location leads to reduced maximum potential, effectiveness, and fairness of service. For public libraries, the location is not optimal meant a decrease in access and decreased usage. There are differences in the nature of the destination of location for public and private sector must be considered. Wheeler in 1920 develops his views using the librarians' subjective assessment not by empirical research. For this reason, Wheeler criteria should be evaluated and compared with other descriptive literature of library location (Koontz, 1997).

Most of the literature on library locations can be categorized as an essay and not based on present analytical information. Those studies generally discussed on the construction of a single new building, additional and rearrangement initiatives that already exist. A number of descriptive literature is generally written by the librarians involved in the site selection process including checklist techniques or description (Koontz, 1997). Koontz (1994) proposed the use of a retail location theory to solve the dilemma of the public library locations. Others are the demographic characteristics that influence consumer behavior such as age, gender, income, education, occupation, lifestyle would affect patterns of the library's usage (Koontz, 1997). In addition, the locational pattern is a system significantly affect the library's usage (Koontz, 1997; Coughlin, 1972), while studies have shown that the distance between the library is imperative in determining the library location as well as having an impact to the library's usage (Getz, 1978).

Wheeler (1958) states that the public library location, both central and branch libraries should be strategically located in the commercial center or where people are gather/concentrated, which it is called as a center of gravity. Such locations are usually not directly related to the distribution of population but influenced by the facilities and customs/travel patterns. However, Koontz (1997) argued Wheeler's view that does not take account of growth in suburban areas, land value concept, market segmentation, consumer behavior, and others.

In 1965, Frank Wetzel stressed that the first step in the analysis of library location is based on

economic survey including the potential population and trade area (Koontz, 1997). Previously, Koontz (1992) outlines some of the principles that are imperative in determining the library location such as; i) closeness of the library facilities; ii) a choice for the larger branches; iii) time of service; iv) age and education; v) families with children more often went to library than whom were not. While, a distance variable is the most often discussed as the public library facility location problems (Koontz, 1992).

The determination of facility layout and planning of library systems have developed tremendously in the past (Coughlin, 1972). The determination of the library's location in the context of general facility location theory is been mostly discussed topic in the 1970s and 1980s (Koontz, 1997). The distance and its influence on the usage has been a major focus (Coughlin, 1972; Bennett and Smith, 1975). The usage patterns have been studied by looking at the relationship of demographic characteristics and socio-economic against the library users. Some important characteristics are education, income, and employment (Coughlin, 1972). A widespread of libraries have been studied in relation to regulations set by the government.

2.5. Conceptual Framework and Hypothesis

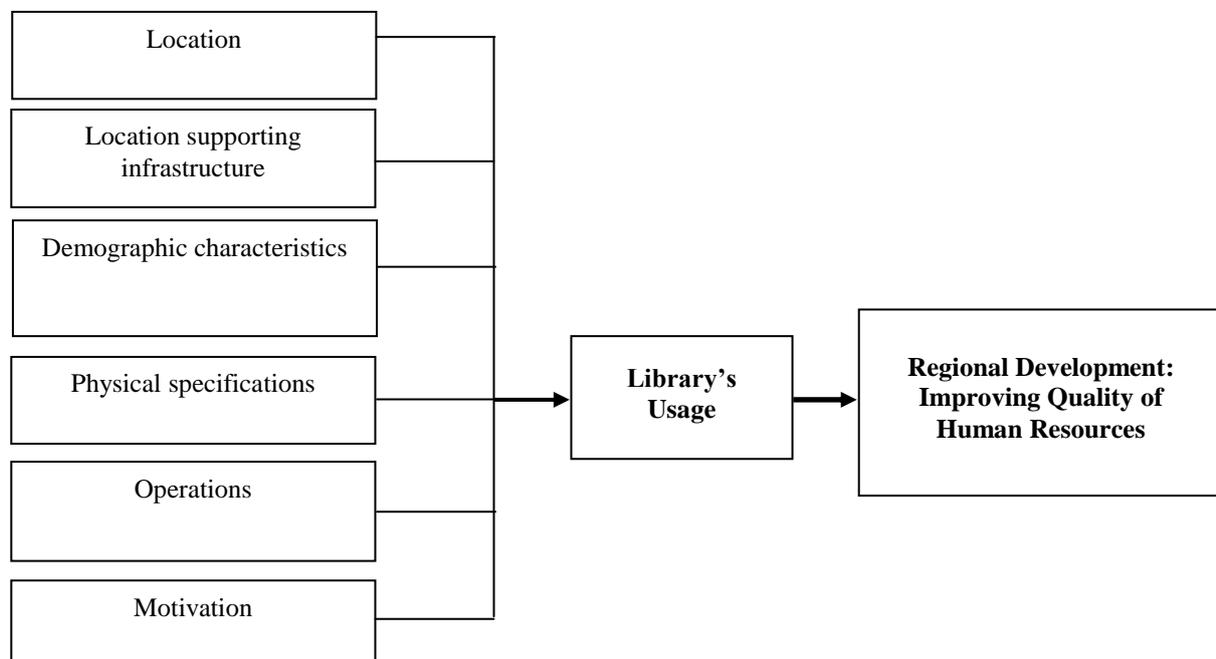


Fig.1 Conceptual Framework

The research hypothesis is formulated as follows:

1. The location of the library, supporting infrastructure library location, the demographic characteristics of library users, the physical specifications of the library, library operations, and motivation of library users influence the use of public libraries in the city of Medan.
2. The library use affects regional development by improving quality of human resources

3. METHODOLOGY

This research used an explanatory design of survey. A design of explanation deployed to explain the position of the variables identified and the effect of one variable with other variables.

3.1 Operationalization of the Constructs

The use of library model incorporated six constructs. Location has been operationalized by four items: distance of user’s residence, distance of user’s working/school/institution place, time needed to reach the location from residence, time needed to reach the location from working/school/institution place. Location supporting infrastructure has been operationalized by six items: availability of transportation from residence or working/school/institution place to reach the location, availability of road infrastructure to location from residence or working/school/institution place, availability of pedestrian, availability of corridor facilities connection from public and private vehicles’ stands to the location, condition of the road infrastructures to reach location, directions to reach location. Demographic characteristics has been operationalized by seven items: user’s age, gender, education level, language ability, race/religion/tribe, economic level, physical disabilities and limitations. Physical specifications have been operationalized by nine items: floor space and the physical state of the building, capacity of the room consists of reading, discussion, collection, reference and Internet access rooms, room layout, furniture, garden or yard, parking facilities, building lobby, public facilities, facilities for physical disabilities. Operations have been operationalized by six items: service system of opening hours and service time, type of services, regulation, collection, retrieval system, program. Motivation has been operationalized by eight items: meeting the needs of information, achievement, self development, self awareness, reading interest, better hope expectation, task completion, joint goals achievement. Library’s usage was operationalized by four items: frequency of visit, length of visit, total books borrowed, total pages copies, Internet access time. The improvement quality of human resources was operationalized by fourteen items: independence, ability to interact, ability to use information and communication technology, academic achievement, reasoning power, reading interest, information literacy, mastery of information, creativity, appreciation of arts and culture, emotional quotient, skills, knowledge, and social concerns

3.2 Data collection and sampling

A questionnaire is used to collect primary data from the public libraries’ users in Medan City, North Sumatera province, Indonesia. This city has an area of 26,510 Ha consists of 25 districts with a large population of 2.083.156. The respondents were selected through accidental sampling method. Based on Krejcie’s Table of sample size, a population of 4,193 people (rounded to 4,000 people) has a sample of 351 respondents. A large number of samples have been following the rules of data analysis techniques that will be used; a structural equation model, which requires a minimum of 100 samples for maximum likelihood estimation techniques (Ghozali, 2004).

4. RESULTS

Preliminary analyses were conducted to provide information about the characteristics of sample firms in Table 2, including gender, occupation, residence location, residence distance, age and education.

Table 2. Respondents Characteristics

Variable	Category	n	%
Gender	Male	107	30.5
	Female	244	69.5%).
Occupation	Junior/Senior High School	114	33.0
	Students	143	41.0
	Government servant	24	6.6
	Lecturer	3	0.8
	Teacher	2	0.6
	Entrepreneur	35	9.7
	Journalist	2	0.6
	Farmer	3	0.8
	Midwife	1	0.3
	Housewife	14	3.9

	Cycle rickshaw	5	1.4	
	Driver	3	0.8	
	Construction labor	2	0.6	
Residence Location	Inside the city	319	89.8	
	Outside the city	32	10.2	
Residence Distance	Less than 1 Km	31	8.6	
	1 - 3 Km	52	14.4	
	3 - 5 Km	75	22.2	
	5 - 7 Km	82	22.7	
Variable	Category	n	%	
	More than 7 Km	111	32.1	
	Age	13 - 18 years	136	38.8
	19 - 23 year	147	41.9	
Age	24 – 40 years	62	17.7	
	More than 40 years	6	1.7	
	Education	Junior High School	81	23.1
		Senior High School	178	50.7
Diploma		21	6.0	
Bachelor Degree		66	18.8	
Master Degree		5	1.4	

Source : Primary data (2015).

4.1. Structural Equation Modelling (SEM) Analysis

Using Structural Equation Model Analysis (SEM), there are three stages that must be done through confirmity factor analysis namely; overall model fit analysis, factor analysis of loading, and reliability analysis (Hair, 1998).

4.1.1 Goodness-of-Fit

Goodness-of-fit of a model can be assessed based on some measure of fit as follows:

Table 3. Evaluation of Goodness of Fit Index Criteria

Goodness of Fit	Cut Off Value
Chi – Cquare	Expected Small
Probability	≥ 0.05
RSMEA	≤ 0.08
GFI	≥ 0.90
AGFI	≥ 0.90
CFI	0 < GFI < 1
TLI	≥ 0.95
CMIN/DF	≤ 2.00

Source: Bentler and Bonett (1980).

4.2. Anaysis of the Model

All variables were screened for normality, homogeneity of variance and for detection of outliers. No outliers were found during the analysis. The Conformity Factor Analysis (CFA) was used to determine if the number of factors (dimensions) and the loadings of measured items conform to what is expected on the basis of the proposed model (Kim and Mueller, 1978). Using CFA to fit the results to a model, it can be noted that all items have the same component loading sign, which indicates the measure fits the data well. While the reliability coefficients are acceptable for all dimensions as shown in Table 4. All correlations were positive, ranging from 0.036 to 0.682, and significantly correlated at both the 0.01 and the 0.05 levels as seen in Table 5.

Table 4. Cronbach's Alpha and Component Loading Range.

Variable	Number of Items	Component Loading Range	Cronbach's alpha
----------	-----------------	-------------------------	------------------

Location	4	0.413 – 0.505	.741
Location supporting infrastructure	6	-0.126 – 0.977	.878
Demographic characteristics	7	0.283 – 0.653	.923
Physical specifications	9	0.279 – 0.699	.929
Operations	6	0.442– 0.634	.942
Motivation	8	0.606 – 0.906	.772
Library’s Usage	5	0.016 – 0.994	.778
Improvement Quality of Human Resources	14	0.163 – 0.484	.805

Source : Primary data (2015).

Table 5. Descriptive statistics and correlation coefficients

Independent Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Location	3.75	1.099	1							
2. Location supporting infrastructure	3.88	1.082	.570**	1						
3. Demographic characteristics	4.22	0.974	.540**	.487**	1					
4. Physical specifications	3.57	1.032	.682**	.302**	.344**	1				
5. Operations	3.48	1.038	.361**	.433**	.302**	.274**	1			
6. Motivation	3.57	0.934	.264**	.288**	.140*	.079*	.105*	1		
7. Library Usage	3.16	1.119	.038*	.203**	.166*	.036*	.086*	.334*	1	
8. Improvement Quality of Human Resources	3.07	0.887	.255**	.085*	.433**	.308**	.048*	.643*	.116*	1

** Correlation is significant at the 0.01 level.

* Correlation is significant at the 0.05 level.

Source : Processed data (2015).

Tabel 6. A Summary of Goodness of Fit Model

Goodness of Fit	Cut Off Value	Estimation Values	Test Results
Chi – Cquare	Expected Small	910.787	Fit
Probability	≥ 0.05	1.000	Fit
RSMEA	≤ 0.08	0.000	Fit
GFI	≥ 0.90	0.917	Fit
AGFI	≥ 0.90	0.893	Fit
CFI	0 < GFI < 1	1.000	Fit
TLI	≥ 0.95	1.050	Fit
CMIN/DF	≤ 2.00	0.761	Fit

Source : Processed data (2015).

As depicted in Table 6, model evaluation on the construct as a whole has produced fit value of GFI so it can be stated that the model is acceptable. Thus the model is assessed valid for hypothesis testing.

Hypothesis testing is done by looking at the probability value or significance relationship of each variable. The criteria used is: if $p < 0.05$ then the relationship between variables is significant. The precision of the path measurement between each variable was tested by comparing the value of the direct effect, standard errors and CR.

Table 7. Standardized Estimates of the Library’s Usage Model

P ot he	di ze d	S: E	C R	P va lu e	P P or
---------------	---------------	------	-----	--------------------	--------------

H1	Library Usage	→	Location	0.479	0.174	2.799	0.002	Yes
H2	Library Usage	→	Location supporting infrastructure	0.468	0.113	4.177	0.000	Yes
H3	Library Usage	→	Demographic characteristics	0.031	0.119	0.303	0.577	No
H4	Library Usage	→	Physical specifications	0.492	0.157	3.172	0.001	Yes
H5	Library Usage	→	Operations	0.293	0.129	2.302	0.006	Yes
H6	Library Usage	→	Motivation	0.311	0.085	3.729	0.000	Yes
H7	Improvement Quality of Human Resources	→	Library Usage	0.320	0.070	4.657	0.000	Yes

Source : Processed data (2015).

As depicted in Table 7, the highest value among six exogenous variables that has appropriate affect to the library’s usage is the users’ motivation variable with path coefficient of 0.311 and the CR value of 3.729 and supported by a low standard error value (0.085). Furthermore, the library usage variable with a path coefficient value (effect) of 0.320 and the CR value of 4.657 and supported by a small error standard value (0.070).

5. DISCUSSION

The results found that five out of the six variables have a significant effect, and one variable, namely the demographic characteristics have a positive effect but not significant. It means that the location, location of supporting infrastructure, physical specifications, operations, and users’ motivation are important factors that should be considered in planning a city's public library system in order to optimize the purpose of providing facilities can be achieved.

Furthermore, the library usage variable is tested to answer the second research question which found has significant effect to the regional development by improving quality of human resources. It indicates that the public library has an important role in the regional development through human resources. The impact of the effect of library usage to improve quality of human resources supported in this study in terms of improving; independence, ability to interact, ability to use information and communication technology, academic achievement, reasoning power, reading, information literacy, mastery of information, creativity, appreciation of arts and culture, emotional quotient, skills, knowledge, and social concerns. These impacts are part of capacity building to achieve results and meet the needs of one's accomplishments which is a hallmark of humans modernity (McClelland, 1981). This is also aligned with the findings by Nachrowi and Suhandoyo (2001) stated that the human resources or population of a region plays a strategic role in the regional development.

In this study, a model is constructed states that the regional development by improving quality of human resources (IQHR) can be increased or affected by the library usage (LU), with a mathematical model as follows

$$IQHR = \alpha_1LU + e_{47}$$

However, the library usage (LU) can be enhanced or influenced by several variables: location (L), location supporting infrastructure (LS), demographic characteristics of users (DC), physical specifications of the library (PS), library operations (LO), and motivation of users (MU), with the following model:

$$LU = \alpha_1L_1 + \alpha_2LS_2 + \alpha_3DC_3 + \alpha_4PS_4 + \alpha_5LO_5 + \alpha_6MU_6 + e_{46}$$

The above model concluded that to increase quality of human resources, the library usage should be optimized. Furthermore, if the optimization insists to be achieved, then the location, location supporting infrastructure, demographic characteristics, physical specifications, library operations, and motivation of the user should be a priority in the planning of public library. These factors can not be separated in the efforts of library usage optimization to enhance quality of human resources in the region. For example, although the library has a strong appeal to the provision of facilities while the population is motivated to use it, but if the library is not located within an acceptable distance for the population, hence improving quality of human resources will not be achieved.

5.1 Location and Location Supporting Infrastructure

There are two items found very influential with regard to the location namely the distance and travel time to reach the location (standardize path coefficient = 0.479 with a value of $p = 0.002$). Both of these factors called as the proximity. While the important matters relating to location of supporting infrastructure (standardize path coefficient = 0.468 with a value of $p = 0.000$) is the availability of public transport, main roads, pedestrian, and signage. These factors are discussed below.

Distance. The new findings in this study which also distinguishes it from previous research is the distance between the residence and travel time to reach the location of the public library. Based on user expectations can be stated that the ideal desired distance is ≤ 3 Km (77.6%). Previous research conducted and widely applied in developed countries like the United States with an ideal distance is ≤ 3 miles or 5.5 km (Koontz, 1997). This difference can be understood caused by factors other than transportation conditions as well as the different levels of mobility between the two regions.

Travel Time. The travel time desired by the user to reach the library facility is a maximum of 30 minutes (91.9%). This finding supports studies conducted by Leonard Grundt in 1963 (Koontz, 1997). These findings also support a research conducted by Thomas Shaughnessy of the use of public libraries in New York, Pennsylvania and New Jersey (Koontz, 1997).

Public Transportation. Public transport is the most widely used mode of transport in urban areas, as well as for users of public libraries. These results indicate that the public transportation route is the strongest indicator (loading factor=0.977) to measure variable of location supporting infrastructure. Therefore, all the city's public libraries, including branches should be in public transportation's lines. This is consistent with the statement of ALA (1956) states that the location of public library should be close to public transport.

5.2 Physical Attractions and Operations

There are two factors that influence the use of the library in terms of management and operation used as the main attraction for the resident, namely the physical specifications of the building (path coefficient standardize = 0.492 with a value of $p = 0.001$) and operations of the library (path coefficient standardize = 0.293 with $p = 0.006$). Both are needed to determine whether a library facility is demanded or otherwise by the resident.

Physical specifications. These results indicate that the physical specifications of the building significantly influence the use of the library. It means the physical specifications of the building becomes imperative matter that must be considered to improve the use of the library. Physical specifications in the planning of the building includes capacity of the room, room layout, furniture, garden, car parking, lobby building, public facilities (cafes, public telephones, toilets, etc.), and access for people with disabilities and physical limitations. The convenient place of the library will attract more resident to use it.

Operations. This study proved that the library operations have a significant impact on the use of the library. This suggests that the better operation of the library, it will increase the use of the library. Therefore, the indicators that should be considered for operational support are; time of service, types of services including Internet access, rules of usage, collection according to user requirements, system retrieval collections, and programs or events offered by the public library.

5.3 Motivation and Demographic characteristics

Motivation is an important factor affecting the use of the library (standardize path coefficient = 0.311 with $p = 0.000$). Meanwhile, the demographic characteristics of the population is not an important factor affecting the use of the library (standardize path coefficient = 0.031 with $p = 0.577$).

6. CONCLUSIONS

The results proved that the motivation affect the use of the library. This indicates that the higher the user's motivation, the higher the use of the library. It has a role in the increased use of the library. Motivation can be built either by intrinsic and extrinsic way. This supports a study by Berg (2009) concerning the encouragement to use the library which driven from a desire within ourselves such as motivation to read and write and need to be independent.

The results proved that the demographic characteristics is not significant to the use of the public library. Demographic characteristics include users' age, education, gender, economic level, language proficiency, disability, ethnicity, religion and race. It does not support the studies that have been conducted in developed countries where demographic factors significantly influence the use of the library (Koonzt, 1992). This likely due to the distinct conditions of population demographics such as problems of language, race and religion.

Based on the above conclusions, suggested some way related to the use of public libraries to improve the quality of human resources in the city of Medan, as follows:

1. The government of Medan city are advised to build the public library facilities with a single integrated system and service management.
 - a. Location public libraries should be spread throughout the city so close to people's residences and/or travel time that is acceptable to the community.
 - b. Infrastructure to support the location of the public library should be built or facilitated so achieve high accessibility.
 - c. Demographic characteristics of users is considered in developing collections and services that meet the needs of the community.
 - d. Physical specifications of each public libraries' building must provide comfort and accommodative to potential users.
 - e. Library operations need to be expanded in order to provide the flexibility of a greater service to the users of public libraries.
 - f. Intrinsic motivation users should be improved through cooperation with various parties such as family and educational institutions.
2. The government of Medan city should involve and promote the role of the public library institutions to mobilize the potential of the city to grow and advance with greater participation of the city's population.
3. To further research and development related to the topic is recommended as follows:
 - a. Continue and develop this research primarily to identify and select specific layout of each libraries within a library system network in the city.
 - b. Research on the same topic in different locations should be done to realize the regional development concept in improving the quality of human resources.

7. ACKNOWLEDGEMENTS

This study is dedicated to the University of North Sumatra that has been providing assistance funding for this research.

REFERENCES

- Abeltina, Anna (2008), *The role of human capital in regional development*, 5th International Scientific Conference Business and Management, available at http://www.vgtu.lt/leidiniai/leidykla/BUS_AND_MANA_2008/soc-economical/483-489-G-Art-Abeltina.pdf (accessed February 17, 2010)
- Adisasmita, R. (2005), *Fundamentals of the region's economy*, Yogyakarta, Graha Science.
- Antunes and Bigotte. (2003), *Comprehensive Public Facility Location Modeling*, available at <http://www.esnips.com/doc/19f4d27f-f951-4772-834a-1fa017193351/comprehensive-public-facility-location-modeling> (accessed September 17, 2008).
- Ary, S. (2001), *The role of human resources in the developing of regions in Indonesia*", In Muchdie et al (Ed) Three pillars of regional development: natural resources, human resources, and technology, the Centre for Policy Studies BPPT Technological Development Area , Jakarta.
- Bennet, William D. and Bruce W. Smith (1975), *The correlates of library patronage distance decay*, East Lakes Geographer 10.
- Berg, Margaret A. (2009), *Motivation and discourse in a literate environment: A case study of a young adult library*. PhD Dissertation, Faculty of the Graduate School, University of Kansas.
- Bentler, P.M. and Bonett, D.G. (1980), Significance tests and goodness of fit in the analysis of covariance structures, *Psychol. Bull.* 88(1), pp. 588–606.
- Brata, A. G. (2002), Human development and regional economic performance in Indonesia, *Journal of Development Economics: Study of Developing Economies*, 7(.2). pp.1-15.
- Calcuttawala, Z. (2004), *Knowledge stores: The spatial dynamics of public library accessibility and consumption in Calcutta*. PhD Dissertation, University of Cincinnati.
- Church, R. L. and C. S. ReVelle (1976), Theoretical and computational links between the p-median location set-covering and the maximal covering location problem, *Geographical Analysis*, 8(1), pp. 406-415.
- Coughlin, R. E. (1972). *Urban Analysis for branch library system planning*, Greenwood Publishing, Connecticut
- Current, J., H. Min, and D. Schilling (1990), Multiobjective analysis of facility location decisions, *European Journal of Operational Research*, 49(1), pp. 295-307.
- Daskin, M. S. (1995), *Network and discrete location: Models, algorithms, and applications*, Wiley Interscience, New York
- Daskin, M. S. and Owen, S. H. (1998), "Strategic facility location: A review", *European Journal of Operational Research*, 111(2), pp. 423-447.
- Dear, M. J. (1974). A paradigm for public facility location theory. *Antipode*. 6 (3), 46-50.
- Drezner, Z. and G. O. Welowsky (1991), Facility location when demand is time dependent, *Naval Research Logistics*, 38(3), pp. 763-777.
- Florida, Richard, Charlotta M. and Kevin S. (2007), *Inside the black box of regional development: human capital, the creative class and tolerance*, available at http://www.creativeclass.com/rfcgdb/articles/Inside_the_Black_Box_of_Regional_Development.pdf (accessed February 17, 2010).
- Getz, M. (1978), The efficient level of public library services, *Working Paper* No. 55 (October). The Joint Center for Urban Studies of M. I. T. and Harvard University.
- Gill, Philip et al. (2001), *The public library service: IFLA/UNESCO Guidelines for Development*, K. G. München. Saur Verlag,
- Hair, et. al (1998), *Multivariate data analysis*, Prentice Hall, New Jersey
- Harvey, D. (1973), *Social justice and the city*, John Hopkins University Press, Maryland
- Hoover and Giarratani (2009), Some spatial aspects of urban problems, In: *Web Book of Regional Science: An introduction to regional economics*, available at www.regionalscience.com (accessed February 27, 2009).
- Japzon, Andrea C. and Hongmian Gong (2005), A neighborhood analysis of public library use in New York City, *Library Quarterly*, 75(4), pp. 446-463.

- Jayadinata, Johara T. (1992), *Land use planning in the planning of rural, urban, and regions*, Bandung, Publisher ITB,.
- Kim, J.O., Mueller, C.W. (1978), *Factor Analysis: Statistical Methods and Practical Issues*, 14(2). Sage Publications, Thousand Oaks, CA.
- Koontz, Christine M. (1992), Public library site evaluation and location: past and present market-based modelling tools for the future, *Library and Information Science Research*, 14(2), pp. 379-409.
- Koontz, Christine M. (1994), Chapter 10: *Retail location theory: Can it help solve the public library location dilemma?* in Geiner, J. M. (Ed.), *Research Issues in Public Librarianship*. Westport, Greenwood Press.
- Koontz, Christine M. (1997), *Library facility siting and location handbook*. Westport. Greenwood Press.
- Krejcie, R. V. and D. W. Morgan (1970), Determining sample size for research activities, *Educational and Psychological Measurement*, 30(2), pp. 607-610.
- Larson, R. C. (1974), A hypercube queuing model for facility location and redistricting in urban emergency services, *Computers and Operations Research*, 1(5), pp. 67-95.
- Manne, A. S. (1961), Capacity expansion and probabilistic growth, *Econometrica*, 29(4), pp. 632-649.
- Marianov, Vladimir and Daniel Serra (2004), *New trends in public facility location modelling*, available at www.econ.upf.edu/docs/papers/downloads/755.pdf> (accessed April 12, 2008).
- Mobasheri, F., L. H. Orren, and F. P. Sioshansi. (1989), Scenario planning at Southern California Edison, *Interfaces*, 19(5), pp. 31-44.
- Nachrowi and Suhandojo (2001), *Analysis of human resources, decentralization and regional development*, In Muchdie et al (Ed) *Three pillars of regional development: natural resources, human resources, and technology*, the Centre for Policy Studies Technological Development Area BPPT, Jakarta.
- National Library Board Singapore (2008), available at www.nlb.gov.sg> (accessed November 25, 2008)
- NESF (2006), *Realising potential: The public library service and cultural inclusion*.
- Olaniyan, D. A. dan Okemankinde, T (2008), Human capital: Implications for educational development, *European Journal of Scientific Research*, 24(2), pp.157-162.
- Palmer, E. Susan (1981), The effect of distance on public library use: A literature survey, *Library Research*, 3(1), pp. 123 -134.
- ReVelle and Eiselt (2005), Location analysis: A synthetis and survey, *European Journal of Operational Research*, 1(2), pp. 165-178.
- Scott, A. J. (1991), Dynamic location-allocation systems: some basic planning strategies, *Environment and Planning*, 3(2), pp. 73-82.
- Seppala, Ulla (2003), *An evolutionary model for spatial location of economic facilities*. Interim Reports on work of International Institute for Applied Systems Analysis (IIASA).
- Sulistyo-Basuki (1993), *Introduction to library science*, Jakarta, Gramedia Pustaka Utama.
- Sweeney, D. J. and R. L. Tatham (1976), An improved long-run model for multiple warehouse location, *Management Science*, 22(7), pp. 748-758.
- Szajnowska-Wisocka, Alicja (2009), Thories of regional and local development: Abridged review, *Bulletin of Geography: Socio-economic Series* No. 12, available at http://www.bulletinofgeography.umk.pl/12_2009/05_szajnowska.pdf> (accessed February 12, 2010)
- Truelove M. (1993), Measurement of spatial equity, *Environment and Planning: Government and Policy*, 11(5), pp. 19-34.
- Urban Institute (2007), *Making cities stronger: Public library contributions to local economic development*, available at www.urbanlibraries.org/files/making_cities>. (accessed August 12, 2008).
- Varheim, Andreas (2008), Theoretical approaches on public libraries as places creating social capital, World library and information congress: 74th IFLA General Conference and Council, Quebec, available at <http://www.ifla.org/IV/ifla74/index.htm>>. (accessed February 17, 2010).

- Welowsky, G. O. (1976), "The multiperiod location-allocation problem with relocation of facilities", *Management Science*, 22(1), pp. 57-65.
- Wheler, Joseph L. (1958), *The effective location of public library buildings*, University of Illinois Library School, Illinois.
- Zen, M. T. (2001), *Basic philosophy of regional development: Empowering human*, In Muchdie et al (Ed) Three pillars of regional development: natural resources, human resources, and technology, the Centre for Policy Studies Technological Development Area BPPT, Jakarta.