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Measuring Shelf Availability in University Library: Universiti Teknologi MARA (UiTM) Machang, Kelantan State, Malaysia

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Abstract

Library chain of operation is measured in this availability study. The function of acquisition, cataloging, circulation, library system and procedure is examined by a simulated search performed by librarian and library staff. A number of 100 titles is randomly searched in OPAC and effort to search initiated and findings are examined. The score shows the probability of availability of patrons leaving the library with desired book in hand. Suggestions are given at the end of article for correction and improvement purposes.

***Keywords*—Availability, owning a book, misshelved items, probability, shelving.**

I. INTRODUCTION

Availability study is likened to system analysis in measuring, inspecting and quantifying the system performance particularly the library operation (acquisition, cataloging, circulation, OPAC and library systems). Availability study can identify weaknesses (or strength) within the library chain of operation from acquisition to circulation. The probability of user owning a book is analyzed virtually by trailing patron's footstep after identifying book in OPAC, searching for the right shelf and finally retrieving by means of call number. Failure and success in these efforts is calculated and interpreted as probability of user in obtaining desired book. By using availability study, library is able to identify which chain of operation is lacking or inefficient in performing their function.

II. AVAILABILITY STUDY IN LIBRARIES

Nisonger (2007) wrote an extensive review and analysis on availability studies done from 1980's to early 21st century. The terms "shelf availability study," "failure study," or "frustration study" have alternatively been used for this type of study and/or variations upon the method. It is mostly viewed as a research approach as far as 1970's and continuously use on international scale throughout the 2000's as pointed out by Nisonger (2007) analysis. Kolner & Welch (1985)

presented their discovery in comparing capability study and availability study in the health sciences library.

Capability study is the analysis of citations from the publications of authors within the primary user population. The pool of information is then compared using samples from the pool and thus its ability over a span of time to provide the requested item is then measured. The capability study was reportedly first introduced and described by Orr et al. (1968). With regards to availability study as a specific genre of library research, it dates back to the 1930s as claimed by Lancaster (1993) and detailed by Nisonger (2007). Kantor (1976) performed availability study to analyze users' ability to fulfill their information need in subsequent interaction with the library. The focus of the availability study as stressed by Kantor (1976), Kolner & Welch (1985) and Lancaster's (1993) research is to measure the probability that a user will obtain what they want from the library collection. Another reason for undertaking availability study is that it measures the effectiveness of the library collection development. According to Kolner & Welch (1985), availability study measures the library's performance from the demand-driven perspective.

Regardless of the aforementioned intent, availability study has been used for other reasons also such as identifying missing items (Atkins & Weible, 2003), generalization of availability and circulation of reading material (Deckert, 1981), (Ming-der et al, 2010), duplication need in library (Buckland & Woodburn, 1969), publication availability in the World Wide Web (Lopresti & Gorin, 2002) and checklist evaluation (Nisonger & Meehan III, 2008). Atkins & Weible (2003) discovered through the analysis of unfilled interlibrary loan request that shelve arrangement, retrieval and shelving error contributes to statistics of missing items. Deckert's (1981) research revealed that the evaluation of population's reading material availability may serve mainly to appraise potential levels of community reading, thus if the availability is compared to that of others, it may suggest a continuum of world and life views. From the continuum, we can reflect community's different attitudes and beliefs about truth, knowledge, authority, and ultimately about personal involvement in change. Ming-der et al. (2010) investigation lead them to stress that inter library loan service facilitates the sharing of resources among libraries in Taiwan universities. Sufficient collections in the regional and national level are needed in fulfilling users' requests.

Duplication need in library acquisition is addressed in a research by Buckland & Woodburn (1969) in which it was found that it is possible to relate the average request rate to the number of copies and the degree of library availability likely to be achieved. Though ultimately, Buckland & Woodburn (1969) recognized that their findings may not likely to be replicable in other complex situation. Availability in the Web also is a research interest such as by Lopresti & Gorin (2002) who discovered that one third of government publications are not accessible on the Web roughly two years after being sent to depository libraries. Thus, it was suggested that a safety net comprising of the Web, Government Printing Office (GPO) access, depository libraries and GPO partnerships with libraries and agencies could be a solution to issue of permanence, thus ensuring its availability and accessibility even if it was taken down.

In comparing Harvard and Yale university library rowing collections, Nisonger & Meehan III (2008) use semi-availability study whereas a list of items is checked against the holdings of the library or library system under evaluation, as indicated by its catalogue. The percentage of listed items held by the library or library system is calculated and used as an indicator of collection strength. Major advantages include straight forward and relatively easy implementation, objective results that are readily understood and the use of a well-established method. The fact that an item

may be owned and still not available because it is checked out, difficulty in locating an appropriate list and ambiguity in interpreting the results are leading criticisms of this approach.

III. Availability Study: pros and cons

Availability study in library collections has seen different materials in focus such as books (Gregory & Pedersen, 2003), journals (Zaynab & Ng, 2003), electronic journals (Squires, Moore & Keesee, unpublished study; Crum, 2011; Nisonger, 2009), international documentation (Barsic, 1987) and also involves pairing ILL service and recall (Gregory & Pedersen, 2003). Increasing volume of recalls at this stage in our history when the average academic library can afford to buy less and less monographs lead some researchers to think about: How and how well, is a library responds to the needs of those who failed to find on the shelf an item that the library already have? In the case of the Iowa State University library, the practice was to recall an item if it is circulated to other readers and to borrow items through inter-library loan (ILL) only if it is lost, billed as lost, or at the bindery. The assumption behind this policy and the justification for not routinely use ILL to borrow the title checked out to library's own user, that Iowa State University librarian can certainly arrange to share one book "owned" between two local borrowers more quickly than the normal ILL process, (Gregory & Pedersen, 2003).

TABLE I
LANCASTER'S AVAILABILITY

Items	Counts
Number of items looked for	450
Number owned	364
Number of owned items located in catalog	312
Number of located items found on shelf	209
Reasons for non-availability of items on shelf	**Counts**
In circulation	62
Waiting to be reshelved	12
Misshelved	10
At binding	8
In use in the library	2
Item unaccounted for	9

Lancaster's (1993) analysis in availability research example.

Analytically, what are the advantages and disadvantages of this specific genre of research? Kolner & Welch (1985) identified the advantages of availability study in which it is acknowledged that sampling is easy and ever ready. Moreover, this type of study requires little time and least effort is needed. Most importantly, the user demands from the study are most likely to be authentic, not just an approximation. Thus, the demand shows an important user request and their genuine information need. In addition, the study involves real library users' participation and not just an idealized group of representative. More significantly, availability study provides simultaneous measurement of the user's ability to fulfil their information need and the library performance in organizing information and providing access to users in an

effective and efficient manner. Furthermore, no adjustment is needed to compensate for timing errors as the study can readily carried out during the cycle of an academic year. Also, readily available recent comparative data for other libraries of all types which have carried out this test is a convenience for comparison purposes.

In spite of those advantages, availability study also has its weaknesses. Kolner & Welch (1985) stated that un-manifested information wants are not included. In other words, patrons who do not attempt to find information from the library are unrepresented. In contrast to what was said about available data, actually not all comparative data exists particularly in the case of health sciences library, (Kolner & Welch, 1985). In addition, availability study is relatively intrusive research methods in which consent of samples are required, (Dobson, 2008). Also, the downside of the study is that it does not measure document delivery capability for items not owned, (Kolner & Welch, 1985).

Alabi (2011) indicates that a vital sign to ascertain the effectiveness of a library operation is the measure of materials availability sought by its users. And one method of measuring availability is the method known as the branching method which was initially used by Kantor (1976) and has been used for a number of studies in libraries of developed and developing countries. For example, Buckland's (1970) study at the University of Lancaster reported that circulation was the major barrier to book availability, and recommended variable loan periods and purchase of duplicate copies to increase availability. To date, the branching method developed by Kantor (1976) during the 1970s has been acknowledged as one of the best known availability techniques and one of the most frequently conducted in research. The fact that Kantor's branching method has been implemented in the United States, Europe, Africa, Asia, the Middle East and Australia testifies to its wide international acceptance (Nisonger, 2007). It was argued that the branching analysis for the combination of effects and the particular measures derived are universally applicable for studying these aspects of library performance (Saracevic, Shaw & Kantor, 1977).This model of studying library effectiveness, according to Saracevic, Shaw & Kantor (1977) is similar to those found in Operations Research, Systems Engineering and related fields.

IV. Methods of Study in Availability Research

Library effectiveness can be subjectively measure in any process of the library processes, for instance, Kolner & Welch (1985) expressed the implication of missing library materials. Missing item reflects poorly on the library staff's ability to manage its collection. Library staffs are essentially the guardian and steward of the collection and though a percentage can be a small figure, such a statistic could translate to a large amount of money and time to replace the missing and lost item. Furthermore, such a waste is not easily explained to administrators, stakeholders, faculties and taxpayers. In most cases, missing items are related to poor shelving as pointed out by Atkins & Weible (2003) and essentially shelving skill requires precision. The complexities of shelving process require the staff to be thoroughly trained and constant oversight to ensure accuracy. Interestingly, Kolner & Welch's research discovered some novelty results from that of Lancaster (1993), in the result they found out that the missing books can either be not on the shelf, sort, misshelved, oversized materials, out of sequence, high use, overcrowding and maintenance shifting.

As a comparison, Lancaster (1993) stresses the availability study sampling methods and its advantage, the reason is that it would provide reliable data on the failure rate. Thus from the failure

rate, it is possible to analyze and identify the reason for the failure. The nature of availability study is fundamentally exploratory and thus Lancaster (1993) exemplified how it can be done by such an example.

"Suppose that 800 users, selected at random, are briefly interviewed over a period of several weeks as they enter the library. Of these, 510 claim to be looking for one or more 'known items'. Each records on a brief form whatever details he has on one of the items he is seeking. He is asked to use the same form to indicate whether or not he was able to find it on the shelves. Let us say that 450 of the 510 users fully cooperate as requested and return completed forms to the investigators as they leave the library. By follow-up procedures, the investigator is able to produce the following data:"

Based on the findings as per example above, researcher can calculate the probability of ownership of a sought item which is 364/450 (.81), the probability of a successful catalog search for an item owned is 312/364 (.86) and the probability that an item found in the catalog will be found on the shelf is 209/312 (.67). Overall, in 209 out of 450 cases (.46) the user is able to leave the library with the desired item in hand.

As we can see from Lancaster's (1993) and Atkins & Weible's (2003) discoveries, result novelties includes physical library arrangement such as oversized materials, out of sequence, overcrowding of the shelves and maintenance shifting of shelves from one place to another. Though oversized materials were found out not to be a significant factor in missing materials, it still identifies training problem with shelving staff and also poor or lack of supervisor oversight. Out of sequence also has been singled out as insignificant factor of missing materials due to low number of out of sequence material found in the research. Nevertheless, one important lesson to be learned here is that out of sequence materials can sometimes contribute to materials considered missing because of lack of communications among staffs. In the case of University of Illinois library, the problem was realized when users go to the original location and it appears that an entire collection had gone and its whereabouts is unknown.

Overcrowding of library shelve is deliberated in detail in Atkins & Weible's (2003) research. In their findings, it was found that two decks of shelves was well over the prescribed 86% shelf capacity. Surprisingly, the two decks identified as being overcrowded was at the capacity of 107.6% and 107.2% respectively in which it is so critical that books are stacked between aisles. Overcrowding can become a severe problem if the shelves are not managed in a well planned strategy and librarian should take heed of the 86% shelf capacity rules. The lesson learnt from this research is that items may be missing or cannot be found by the retrieval staff due to items cannot properly fit on the shelves and instead are stacked on top of each other on the floor. Therefore, shelf capacity planning and monitoring should be an essential check list for librarian managing the circulation departments.

Another factor for missing materials as discovered in the research is the activity of shelve shifting. A significant number of items had been found missing due to the maintenance shifting of shelves. The explanation is that although shifting is a good measure to alleviate crowded situation, sometimes mistakes can be made in moving parts of the collection to new areas. In practice, shelf reading always accompanies but sometimes it will take time for the staff to manually read each item's call number and shift books when they encounter errors. If an entire range or multiple shelves are incorrect, it may consume staff's time to completely shift other ranges to accommodate the error.

Recently there are concerns within the librarianship community about the cost of library floor and space. Nowadays users do not consider library as a mere place to store books, (Antell & Engel, 2006). Research has shown that an increased usage of library spaces demonstrating faculty and students' needs of physical environment on campus, (Cox, 2011; Gibson & Dixon, 2011). In the information age, library is considered as a unique place facilitating the kind of concentration necessary for participating serious scholarly work, especially for junior scholars. User preference for library space in particular is in need of specific areas such as study carrels, soft chairs, group study rooms and other facilities that promotes collaborative study, (Seaman, 2006; Hughes, 2011; Bennett, 2006).

Thus, there are proposal from researchers on how to maximize space usage and saving cost. Hao-chang & Kuan-nien (2012) proposed an innovative model of stacks management called "parent–child–grandchild" model. In this model, book stacks are divided into three sections, one large ("parent"), one medium ("child") and one small ("grandchild"). The three sections comprise the entire printed collections of a library, representing different functions and uses of the stacks. In the large stack, probably over 90% of the whole collections, its function is to store books rather than for books to be browsed between the stacks. The principle of book selection here is that all the books were not borrowed during the preceding year. Therefore, the books are less likely to be needed for the current year. In contrast, the medium section looks just like any normal book stack area. The difference is that the books here are borrowed much more frequently than those in the large stack section. To save shelving time, the books in the medium stack section are arranged without any special classification principle (call numbers).

Finally, books newly returned to the library are located in the "grandchild" section (small stack section) for about a week before moved to medium stack section. Newly arrived books are also placed here for a certain time before moved to large stack section unless some of the books recommended to purchase by users should be reserved for them. This section is open to all users who can browse the books at their pleasures. The books are likely to be selected any time before they are sent to the other sections.

This model uses Radio Frequency Identification for item retrieval from the stacks. When a user has obtained the particular bibliographic records from the library catalog system and the book is located in the medium stack, RFID is used to locate its place on the stack. The model is a novelty and naturally in its infancy there are still issues that are needed to be addressed in order for it to be use for the general type of libraries. Criticism against the model includes initial expenses of facilities (special stacks, RFID and library system software) and inconvenience and waiting time in the early stages. Users are no longer allowed to enter the large and medium stack sections. This deprives them of the pleasure of browsing books and the surprise of finding unexpected books. Nevertheless, such a proposed model is worthwhile solution to library space problem that may prohibit accessibility and availability of library item.

Kantor (1976) developed a method to test whether a desired item can be actually located and ultimately owned from the library shelf. The introduction of the so-named 'branching' method highlighted barriers that can prevent patrons from locating, retrieving and owning a desired item. The barriers or hurdles as elaborated by Ciliberti et al. (1998) are firstly the acquisition (it was not acquired by the library), circulation (all copies are loaned out) and library operations (item shelved incorrectly). Kantor (1976) and his colleagues (Saracevic, Shaw & Kantor, 1977) assigned a ratio of success at all these barriers (calculated as the ratio of the total number of search success on

every level) as the perceived representation of the discrete probability of success. They suggested that the probability figure of individual branches should be interpreted as a measure of the overall performance of availability of library materials. Kantor's model for subject searches is like a waterfall in which user must pass each level to finally own a desired item.

V. RESEARCH METHOD

This research is a simulated availability study in which 100 titles of open shelf books is randomly selected from OPAC and search by librarian and library staff. No actual patron is used in the study. The aim is to determine whether the book can be correctly retrieved on the shelf. The purpose is to measure the probability of a user owning a book when searching library OPAC. The study utilizes Lancaster's (1993) methods with a slight adjustment. The following category of discovery is marked in the findings; A=available (meaning the book is found on the shelf in retrievable condition), C=circulated (meaning the title is on loan), I=item unaccounted for (meaning item is lost or missing), T=trolley (meaning the book was found in the trolley waiting to be reshelved), M=misshelved (meaning the book is found out of call number sequence), B=bindery (meaning the book is in the bindery for repair), G=in use (meaning it is being used in the library; on the table, sofa, etc.), E=call number error (meaning the book has a wrong call number) and L=other reason (meaning other reason for not found which is discovered after follow up procedure).

Universiti Teknologi MARA (UiTM) is a public university and serves as a backbone to the development of the Malay people particularly in entrepreneurship, technology and business. Every state in Malaysia has one or more branches of UiTM. The university reputation is historically embodied in its struggle to elevate and shape the future of the Malays long time ago since its inception during the 1950's as a college for rural development. The UiTM in Kelantan was founded in 1985 and had gradually progressed into a standard higher learning centre in the state of Kelantan. Today, UiTM Kelantan has grown into a huge educational institution where it has over more than 6,000 students and 800 staffs. What start out as a development centre some time ago, UiTM has stood tall with a number of faculties; (1) Accounting, (2) Art and Design, (3)Science Administration and Policy Studies, (4)Business Management, (5)Computer Science and Mathematics and (6)Information Management. Currently, there are 11 Diploma programs and 13 undergraduate programs on offer. So, with the vast number of students and staff population the library only provides 650 seating for patrons.

The data gathered using Lancaster's (1993) methodology will show the probability of a user owning a book when using OPAC and retrieving it on the shelf. The counts of not found material went follow-up procedure to determine the problem or barrier hindering availability. The problems are investigated and analyzed in the findings.

VI. RESEARCH FINDINGS

The study was conducted by the librarian (authors) and assisted by library staff. The result (Table II) shows Lancaster's method used in the study. We purposely select 100 random titles from library OPAC, all of them are open shelves materials only. Other item category (reference, reserve, audio visual, kit, etc.) are excluded from the list. From the findings, the calculated probability of successful catalog searched for an item owned is 77/100 (0.77) and the probability that an item found in the catalog will be found on the shelf is 42/100 (0.42). Item owned score 0.77 is sum of

total of items found on the trolley 23/100 (0.23), items being used in the library 12/100 (0.12) and items found on the shelf 42/100 (0.42). From the result, we can conclude that a user have a 0.42 chance of leaving the UiTM Kelantan library with desired item in hand.

The availability of book by chance is retrievable by 0.42 according to this finding. The score is an average when compared to other studies presented by Nisonger (2007). Circulated items only scored 3/100 (0.03). Misshelved items are 11/100 (0.11) an indication of how shelving job is done. That being said, the current collection now is around 80,000 volumes, if we apply this number to the whole collection then we can assume a number of 8,000 volumes are misshelved. Lost and/or missing only accounts for 0.04 score which is due to library strict policy on lost item and effective implementation of library staff when dealing with patron with overdue items. Call number error only constitutes 0.01 score from total of 100 samples. Other reasons for items not found are items in branch library (Kota Bharu city campus) and weeded/discarded items.

This type of item status should not happen and must be rectify so that patrons are not put to search items available elsewhere and also discarded items should be removed from OPAC's search hits. Students can sometimes get confused with library jargon and thus simple terms must be applied especially in OPAC.

TABLE II
UiTM KELANTAN ACADEMIC LIBRARY AVAILABILITY

Items	Counts
Number of items looked for taken from OPAC	100
Number owned	77
Number of owned items located in catalog (OPAC)	77
Number of located items found on shelf	42
Reasons for non-availability of items on shelf	**Counts**
In circulation (C)	3
Waiting to be reshelved (T)	23
Misshelved (M)	11
At binding (B)	0
In use in the library (G)	12
Item unaccounted for (I)	4
Call number error (E)	1
Other reasons (L)	4

Availability in UiTM Kelantan 2014 research findings.

VII. CONCLUSION

The study has showed a probability score for measuring shelf availability. UiTM is one of the core universities that put the struggle of the Malays as their primary mission. Thus, learning and education became the top priority. As that is the main point of the university purpose, the usage of library books is quite high as indicated in the findings. We suggest that the library should review its shelving process as the score is quite significant for misshelved items. Misshelved items can contribute to failure in accessibility and reduce availability score.

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REFERENCES

Alabi, G. A. "Book Availability and Performance Measure in an Academic Library: The Case of the Walter Sisulu University (WSU) Library, Mthatha Campus". *Lib. Philo. & Practice* (e-journal), 2011.

Antell, K., & Engel, D. "Conduciveness to Scholarship: The Essence of Academic Library as Place". *Coll. & Res. Lib.*, 67 (6), 536–560, 2006.

Atkins, S. S., & Weible, C. L. "Needles in a Haystack: Using Interlibrary Loan Data to Identify Materials Missing from a Library's Collection". *Lib. Coll., Acq., & Tech. Services* , 27, 187–202, 2003.

Barsic, Z. "The Availability and Use of International Documentation in Yugoslav Libraries". *Govt. Publ. Rev.*, 14, 295-309, 1987.

Bennett, S. "The Choice for Learning". *The Jour. of Academic Librarianship* , 32 (1), 3–13. 2006.

Buckland, M. K., & Woodburn, I. "An Analytical Study of Library Book Duplication and Availability". *Info. Storage & Retri.*, 5, 69-79. 1969.

Buckland, M. "System analysis of a University Library. Final report on a Research Project", University of Lancaster, 1970.

Ciliberti, A., Radford, M. L., Radford, G. P., & Ballard, T. "Empty handed? A material availability study and transaction log analysis verification". *The Jour. of Acad. Librarianship*, 24 (4), 282-289, 1998.

Cox, A. "Students' Experience of University Space: An Exploratory Study". *Interl. Jour. of Teaching & Learning in Higher Education*, 23 (2), 197–207, 2011.

Crum, J. "An Availability Study of Electronic Articles in An Academic Health Sciences Library". *Jour. of Medical Lib. Assoc.*, 99 (4), 290-296, 2011.

Deckert, G. D. "The Availability and Circulation of Reading Materials in an Iranian City". *Interl. Lib. Rev.*, 13, 43-63, 1981.

Gregory, D. J., & Pedersen, W. A. "Book Availability Revisited: Turnaround Time for Recalls versus Interlibrary Loans". *Coll. & Res. Lib.*, 283-299, July 2003.

Hao-chang, S., & Kuan-nien, C. “A Proposed Model for Library Stacks Management”. *Lib. Coll., Acq., & Tech. Services* , 36, 24-29, 2012.

Hughes, A. “The Library as A Preferred Place for Studying: Observation of Students’ Use of Physical Spaces”, *Evid. Based Lib. & Info. Prac.*, 6 (2), 2011.

Kantor, P. “Availability Analysis”. *Jour. of the American Soc. for Info. Sc.*, 27 (5), 311-319, 1976.

Kolner, S. J., & Welch, E. C. “The Book Availability Study as an Objective Measure of Performance in a Health Sciences Library”. *Bull. of the Med. Lib. Assoc.*, 73 (2), 121-131, 1985.

Lancaster, F. W. *If you want to evaluate your library* ... (2nd ed.). Champaign,Illinois: University of Illinois, 1993.

Lopresti, R., & Gorin, M. “The Availability of US Government Depository Publications on the World Wide Web”. *Jour. of Govt. Info.*, 29, 17-29, 2002.

Ming-der, W., Yu-ting, H., Chia-yin, L., & Shih-chuan, C. “An Evaluation of Book Availability in Taiwan University Libraries: A Resource Sharing Perspective”. *Lib. Coll., Acq., & Tech. Services*, 34, 97–104, 2010.

Nisonger, T. E. “A Review and Analysis of Library Availability Studies”. *Lib. Res. & Tech. Services*, 51 (1), 1-28, 2007.

Nisonger, T. E. “A Simulated Electronic Availability Study of Serial Articles through a University Library Web Page”. *Coll. & Res. Lib.*, 70 (5), 422-445, 2009.

Nisonger, T. E., & Meehan III, W. F. “The Harvard and Yale University Library Rowing Collections: A Checklist Evaluation and Semi-Availability Study”. *Lib. Coll., Acq. & Tech. Services*, 31, 119–137, 2008.

Orr, R., Pings, V., Pizer, I., & Olson, E. “Development of Methodology Tools for Planning and Managing Library Services”. *Bull. of the Med. Lib. Assoc.*, 56 (3), 235-240, 1968.

Saracevic, T., Shaw, W. M., & Kantor, P. B. “Causes and Dynamics of user frustration in an academic library”. *Coll. & Res. Lib.*, 38 (1), 7-18, 1977.

Seaman, S. “The Library as Learning Environment: Space Planning in an Academic Library”. *Colorado Lib.*, 32, 5–7, 2006.

Squires, S. J., Moore, M. E., & Keesee, S. H.. *Electronic Journal Availability Study*. 1-16. University of North Carolina, (n.d.). Retrieved January 5, 2013, from www.eblip4.unc.edu/papers/Squires.pdf

Zainab, A., & Ng, S. "Availability and Overlap of Quality Computer Science Journal Holdings in Selected University Libraries in Malaysia". *Malay. Jour. of Lib. & Info. Sc.*, 8 (1), 45-63, 2003.

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