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Serendipity on information searching behavior in use e-journal collection

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Abstract

This study aims to determine the behavior of serendipity information seeking among Airlangga University lecturers in the collection of e-journal of Airlangga University library. The method used in this research is quantitative descriptive. In this case the researcher will describe serendipity in information seeking behavior, as well as see the extent to which the form of library e-journal collection is used. The object of this research is among lecturers in the Airlangga University environment. Serendipity in information search behavior of e-journal collection is supported by the experience of lecturers in conducting information searches, as well as support from the e-journal system itself. The results of this study indicate that serendipity information on information search behavior belongs to the high category. Research on information seeking behavior has been carried out a lot, but serendipity research on information seeking behavior is still very rarely done, especially in Indonesia, there is still no research related to it.

Keywords – serendipity, information seeking behavior, e-journal collection

Introduction

As one of the information provider institutions, the library seeks to provide and provide information in accordance with the needs of its users. Likewise also with the college library which provides a type of collection, one of which is the e-journal collection, in order to meet the scientific information needs of the civitas academica in the college. The library provides a budget that is not small every year to subscribe to a collection of quality e-journals from publishers who are credible and reliable in accordance with the subjects of science being studied, so that the academics are no longer confused in finding information to complete the tasks they are currently working on (Maloney and Conrad, 2016). The academics who are college library users include students, staff educators, and lecturers.

To support and support his duties as a teacher and researcher, the lecturer conducts information seeking behavior (information seeking behavior) to fulfill his information needs. Based on the results of the study, revealed that e-journal is one of the main sources of scientific information used by lecturers to complete their work, because the journal is considered to have a wealth of scientific information contained in the contents of the journal and has undergone several

stages of validity or feasibility of the team editors whose contents are in the journal itself (Jayanti, 2017; Imtihana, 2012; Cahyono, 2011).

To obtain scientific information that is in accordance with the needs of the lecturer, then in the behavior of scientific information search, one cannot help but have to browse or surf, starting by typing the keyword or keyword in the column in the e-journal collection provided by the library. When browsing in the e-journal collection, many people including lecturers often experience what is called "serendipity" in scientific articles found in the e-journal collection. Serendipity is often found when someone browsing or surfing finds information (Foster & Ford, 2007; McCay-Peet & Wells, 2017; Makri, & Blandford, 2012).

In the search behavior information serendipity is interpreted as accidental finding information or a coincidence to find information that was initially not thought to find that information. Most information found in serendipity is more in line with information needs (Solomon & Bronstein, 2016; Skageby, 2012; Foster & Ellis, 2014; Agarwal, 2015; Massis, 2011). Many even say that this serendipity is a pleasant coincidence (Watson & Fishing, 2008). Information retrieval by serendipity is different from information seeking purposively. Serendipity as a search for information that accidentally meets, does not directly search for that information, but suddenly finds it.

E-journal as a source of scientific information that is widely referred to by the entire civitas academica, making the success of finding the information needed as the main goal to be achieved. By utilizing the advances in information and communication technology, the e-journal system provides a means to direct users to get the right information according to their information needs (Conrad, 2015). One of them is through information search in serendipity. Although this serendipity cannot be predicted beforehand, in the e-journal it creates an opportunity for serendipity by displaying information that is interrelated with the information intended by the user in this case the lecturers.

Research on information seeking behavior has been done, but serendipity research on information seeking behavior is still very rarely done, especially in Indonesia, there is still no research related to it. From the phenomena that have been described, researchers are interested in conducting research on the topic which is associated with the utilization of the college library e-journal collection. We all know that there are very few of the academic community including lecturers who utilize library e-journal collections to support assignments (Hasan, 2013; Rusydi,

2014; Andriaty, 2005; Istiana, 2016; Damanik & Ati, 2015; Ulum & Setiawan, 2013; Djamarin, 2015). Ironically, their main scientific information source is scientific journals. Even though the library itself has provided a large budget to subscribe to the journal, its utilization is still not optimal. The Airlangga University Library is one of the libraries that provides a large budget each year to subscribe to e-journal in order to meet the scientific information needs of the civitas academica.

Literature Review

Concep and definition of Serendipity

Serendipity in the organizational context facilitates unintentional search as a solution to a problem (Cunha, 2005). The process that leads to a combination of skills and related information and unexpected search solutions to different problems focuses on understanding conditions to facilitate serendipity. Shows when social networking and active learning are more specific in explorative information-seeking actions. Serendipity as a search for serendipity from something that turns out to be valuable (Cunha, 2010). Serendipity as an action to pay attention to perceptions in the environment combined with elements of opportunity namely accident or perceived lack of control. As well as prepared thoughts, based on previous experience or prior attention. Results that are serendipity, ie perceived benefits or happy endings (Rubin et al., 2011).

The serendipity process developed by Makri & Blandford (2012) is based on a study of how researchers find information based on everyday life. Unexpected information has the potential to both strengthen researchers in existing conception problems or solutions. Directing researchers where the problem of conception or the solution back is configured in several ways. By identifying three questions to determine the elements of serendipity experience (Makri & Blandford, 2012):

- “(1) How unexpected were the circumstances that led to the connection being made?
- (2) How insightful was the making of the connection itself?
- (3) How valuable was or do you expect the outcome to be?”

Serendipity is a process by which new connections are made involving a mixture of unexpected circumstances and insights to project the value of results, by utilizing connections, leading to unexpected results and reflecting values to reflect unexpected circumstances (Makri & Blandford, 2012).

Serendipitous finding of information, is information that is accidentally encountered that is not really needed, but is different from information needs or only included in visceral needs when individuals are not actively involved in information seeking. Line (1974) calls it information known as a need or desire when received, even though it was not articulated as a request.

Serendipity has become an important concern that appears as a category in information seeking behavior in interdisciplinary research. Serendipity was mapped as a complex aspect of information seeking behavior that needed further consideration (Foster & Ellis, 2014).

Serendipity in Information Searching Behaviour

Starting from information needs is formed because of the task or problem faced by someone in the context of information seeking. Individuals want or need to create information to fulfill information needs. Individual information needs differentiated by Line (1974) become a process of 'want', 'demand', 'requirement', and 'use' stages. Information needs as what should be owned for work, research, development, recreation, etc., and comparing needs for needs. 'Want' as desired, individuals may need items they don't want, or want items they don't need. In the context of life, one might want to buy a smartphone because they see other people using it, but actually they don't really need it. 'Demand' or 'information seeking' as actually requested by individuals (into computer-based systems, colleagues or libraries). Information search is the same as demand and is defined as a conscious effort to obtain information. 'Requirements' as a bridging term that can be used to cover all three categories: what is needed (need), what is desired (want) or what is requested (demand). 'Use' as what the individual actually uses. Use may be a satisfactory request from the search results or it may be the result of an accidental encounter or encounter. The definition of information use provides exposure to the existence of serendipity as a result of findings.

Serendipity patterns refer to experiences that are quite common in observing something unexpected as anomalies and strategies, opportunities to develop or expand existing theories (Merton, 1948). The term used in defining the conceptual model of the definition of serendipity in the field of information behavior. Passive information seeking mode as a condition when individuals are not actively seeking information. Active information seeking mode, the condition of individuals seeking information to satisfy goals that arise because of tasks that must be done by someone but the term information seeking or request can be understood as purposive information

seeking. Current information needs, seekers need information based on task or out of curiosity, mapping Taylor (1968) conscious need. The difference in information needs search into different contexts from the present may appear as desires that are within themselves but no active searches that occur. Information demand as information that is currently being sought to fulfill information needs.

Serendipity in this case is a situation where the user is not always looking for information or accidentally serendipity to find information that is searched simultaneously. If the event occurs, it will give a reaction of feeling happy or beneficial or otherwise will be disappointing because the information encountered is not in accordance with the information needs of the user. Serendipity according to Agarwal (2015) is divided into two aspects related to information behavior, the first is the act of finding in the process to meet information then acquisition and find information needs. Second, the second finding is more about something disappointing because it is serendipity, opportunistic, active, unintentional.

Digital Collection as a Serendipity Room

The term browsing is used here in a broad sense. Referring to browsing through websites, jumping from one link to another link, searching for all content, and so on. Browsing randomly without any specific purpose. Serendipity occurs during social networking and active learning, and more specifically in explorative search actions that will map browsing (Case, 2012)

Digital collection information search that enables serendipity. Research by Rimmer et al. (2008) concerning the use of physical and digital space in research. The findings of some participants considered serendipity as something valuable. But the type of serendipity experienced with online sources is different. Browsing through web pages causes researchers to find a source of information that will lead to other information, so finding relevant findings for research. But the amount of online information that is faced is an obstacle for researchers. So browsing in a digital library might improve the perception of researchers regarding serendipity when dealing with digital documents.

Searching information on libraries as an important part of research does not mean that researchers do not realize the benefits provided by digital collections. But what can be captured is the concern of researchers in executing to fulfill information needs by browsing digital collections. Although digital collection sources will make it easier and save time for researchers, they are

anxious about the limitations of search, due to the lack of opportunities for serendipity to occur. There are fears that growing search engines will reduce erratic meeting opportunities in serendipity (Foster & Ford, 2003). Scientists are very worried if the tools they use to search are too focused on search terms which results in removing foreign items that they often find when browsing.

In the process of browsing material in the form of digital collections does not produce the same results as when dealing with the physical environment of information in the form of libraries or archives. Scientists are not sure the same type of browsing and serendipity might occur in the digital environment. Some researchers have experienced the opportunity to meet serendipity in a digital environment. Web and network structures create relationships that are increasingly in demand. Serendipity is different because it requires a different ability to search for a term in randomly generated information that might be related to the initial search. The need to develop methods to create elements of serendipity in digital systems either through a recommendation system or a digital browsing tool (Martin & Quan-Haase, 2016).

The following are 10 dimensions that are used as a measure of serendipity information search behavior in digital library environments from McCay-Peet & Toms (2011).

1. Unimpeded and direct access

Direct and unhindered access to digital information sources.

2. Rich diversity of resources,

The wealth and diversity of digital information sources can help increase interest in exploring digital information sources.

3. Curiosity-invoking display

Curiosity on the information displayed in digital information sources.

4. Striking contrasts

Information in digital information sources that attract attention.

5. Pointers

Like a sign to remind individuals of potential topics of interest

6. Imperfections

The information that has been owned can direct individuals to unexpected and interesting information in digital information sources.

7. Cross contacts,

Alignment of different types of information sources.

8. Multi-reachability,

Individual ability to reach digital information sources through various routes or paths.

9. Explorability,

Individual encouragement to move freely to explore digital information sources, to explore and follow individual curiosity

10. Stopability

The individual's ability to stop exploring digital information sources, then explore information that has been found in depth, after which exploring again completes the understanding that has been gained when exploring information.

Methodology

The method used in this research is quantitative descriptive, according to Bungin (2005) descriptive quantitative research aims to describe the conditions, situations and various factors that arise in groups or communities that are the object of research. In this case the researcher will describe serendipity in information seeking behavior, as well as see the extent to which the form of library e-journal collection is used. The object of this research is among lecturers in the Airlangga University environment.

The location of this research is at Airlangga University, in the collection of e-journals of the Airlangga University library. Which in this case the selection of research locations is based on the Airlangga University library which is one of the college libraries that provides a large budget to subscribe to a collection of e-journals from credible and quality publishers, with the aim of meeting the scientific information needs of the academic community including one are lecturers. So that the environment of Airlangga University has met the criteria to be used as a research location.

Based on the location selection that has been done before, the population in this study are all lecturers in the Airlangga University environment from 15 faculties namely the Faculty of Medicine, Faculty of Dentistry, Faculty of Veterinary Medicine, Faculty of Law, Faculty of Social and Political Sciences, Faculty of Science Culture, Faculty of Psychology, Faculty of Public Health, Faculty of Economics and Business, Faculty of Pharmacy, Faculty of Nursing Faculty of Science and Technology, Faculty of Fisheries and Marine, Vocational Faculty, Postgraduate

Faculty with a total of 1565 lecturers, the number of lecturers obtained from the official website of Airlangga University www.unair.ac.id

To determine the sample using a non-random sampling technique that is purposive sampling with the conditions specified by the researcher. The reason for using purposive sampling is because not all lecturers access the Airlangga University library's e-journal collection. The following are the conditions that have been determined.

1. Is an active lecturer at Airlangga University
2. Accessing the collection of e-journal libraries at Airlangga University in completing assignments as instructors and researchers.

So based on the results of calculations, a sample of 130 respondents was generated. To assess serendipity behavior in utilizing e-journal, use the following average formula:

Average: $(f \cdot \text{very agree} \times 5) + (f \cdot \text{agree} \times 4) + (f \cdot \text{less agree} \times 3) + (f \cdot \text{disagree} \times 2) + (f \cdot \text{very disagree} \times 1) / \text{total of respondents}$

From the average, the following ranges are obtained:

Range	Information
1,00 – 1,80	Very low
1,81 – 2,60	low
2,61 – 3,40	Usual
3,41 – 4,20	High
4,21 – 5,00	Very high

Findings

	Variabel	Frequency	Percent
Gender	Male	59	45.4
	Female	71	54.6
Age Group	25-34	39	30
	35-44	50	38.4
	45-54	32	24.6
	55-64	9	6.9
Faculty	Pharmacy	10	7.7
	Economy and Business	10	7.7
	Law	18	6.2
	Feterinary	8	6.2
	Fisheries and Marine	9	6.9
	Science and Technology	9	6.9
	Humanities	10	7.7

	Social sciences and political sciences	9	6.9
	Medicine	10	7.7
	Dental Medicine	10	7.7
	Public Helath	10	7.7
	Psychology	7	5.4
	Vacation	10	7.7
Database	Sage Journals Online	10	7.7
Journal	Nature	14	10.8
	Indonesia One search	23	17.7
	Springer Link	15	11.5
	EbscoHost Research Database	3	2.3
	ProQuest	8	6.2
	ScienceDirect	18	13.8
	Emerald Insight	8	6.2
	Oxford Academia Journal	31	23.8

Serendipity in the behavior of managing information in e-journal can be described through 10 indicators, namely: Unimpeded and direct access; Rich diversity of resources; Curiosity invoking display, Striking contrasts; Pointers; Imperfections; Cross contacts; Multi-reachability; Explorability; Stopability. The following is a table of results from each of the lecturer serendipity indicators in Airlangga University:

No	Unimpeded and direct access	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Features and e-journal navigation make searching easier	79	32	14	2	3	130	4.40
2	Can explore e-journal as you wish	59	33	25	2	11	130	3,97
Average								4,19

The table above shows that direct and unhindered access to digital information sources is in the high category. Direct and unhindered access to digital information sources includes features and e-journal navigation that facilitates search; users can explore e-journal as they wish.

No	Rich diversity of resources	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Lots of information search results	58	25	24	2	21	130	3.75
2	Many information formats in e-journal	81	27	17	2	3	130	4.39
3	Can check many topics in e-journal	67	32	22	1	8	130	4.15
4	Can explore topics that are not normally checked	87	25	14	2	2	130	4.48
Average								4,19

The table above shows that the wealth and diversity of digital information sources are included in the high category. The wealth and scope of digital information sources in journal databases can help increase interest in exploring digital information sources, which include the search for information in large numbers, many information formats in e-journal, can examine many topics in e-journal; can explore topics that are not normally checked.

No	Curiosity-invoking display	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Curiosity in the search process	84	26	13	3	4	130	4.41
2	Can search all navigation in e-journal	82	23	17	2	6	130	4.33
3	Tracing the things you want in e-journal	87	24	12	2	5	130	4.41
Average								4,38

The table above shows that the curiosity of the information displayed in digital information sources belongs to the very high category. Curiosity includes curiosity in the search process; can search all navigation in e-journal; can search for the things you want in e-journal.

No	Striking Contrasts	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	unexpected words and sentences in e-journal	89	23	12	2	4	130	4.47
2	that attracts attention	85	21	16	2	6	130	4.36
Average								4,42

The table above shows the information in digital information sources that attract attention including the very high category. Interesting information includes unexpected words and sentences in the e-journal that attract attention; Unexpected features or visual navigation can attract attention.

No	Pointers	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Words and sentences in e-journal can trigger thinking	73	34	17	2	4	130	4.31
2	The icons in the e-journal trigger to explore deeper and deeper	87	26	15	1	1	130	4.56
Average								4,44

The table above shows that the sign to remind information seekers of potential topics of interest includes the very high category. Reminders in the e-journal database included include the words and sentences in e-journal can trigger thinking; The icons in the e-journal trigger to explore deeper and deeper.

No	imperfections	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Previously owned information directs exploration	54	34	29	1	12	130	3.90
2	Unexpected information found, is information needed	85	28	12	2	3	130	3.92
3	Unexpected information is found, more relevant to needs when compared to information previously found	78	26	25	1	0	130	4.38
Average								4,07

The table above shows that the information that is already owned can direct individuals to unexpected and interesting information in digital information sources including in the high category. Includes previously owned information directing exploration; Unexpected information found, is information needed; Unexpected information is found, more relevant to needs when compared to information previously found.

No	Cross Contact	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Find something interesting on the e-journal page that has unexpected information	54	44	32	0	0	130	4.17
2	The system in e-journals has connections	60	43	24	1	2	130	4.22

3	between different topics The e-journal system provides information content in order to explore deeper topics	98	17	10	5	0	130	4.60
4	Exploring unexpected topics can lead to other topics	47	42	37	1	3	130	3.99
5	Find unexpected topics in e-journal	45	34	43	2	6	130	3,84
Average								4,17

The table above shows that the juxtaposition of different types of information sources is included in the high category, including finding something interesting on the e-journal page that has unexpected information; the system in e-journal has connections between different topics; the e-journal system provides information content in order to explore deeper topics; exploring unexpected topics can lead to other topics; find unexpected topics in e-journal.

No	Explorability	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Does not stop at information that has been found	63	38	20	3	6	130	4.15
2	The e-journal system encourages exploring deeper	56	29	38	2	5	130	3.99
3	It takes a long time to explore deeper	68	32	19	6	5	130	4.17
Average								4,10

The table above shows that the individual's drive to move freely to explore digital information sources is included in the high category. Browsing in the e-journal database to explore and follow individual curiosity, including Not stopping on information that has been found; The e-journal system encourages exploring deeper; It takes a long time to explore deeper.

No	Multi-reachability	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	The system in e-journal provides many alternative information searches	28	85	12	3	2	130	4.02
2	Can find information in several alternative ways	26	70	25	8	1	130	3.86
Average								3,94

The table above shows that the ability of individuals to reach digital information sources through various routes or pathways is included in the high category, which includes the system in e-journal providing many alternative information searches; can find information in several alternative ways.

No	Stopability	Very Agree	Agree	Less Agree	Disagree	Very Disagree	Total	Average
1	Stop exploring when you get information	54	44	32	0	0	130	4.17
2	The system in the e-journal encourages stop browsing deeper	60	43	24	1	2	130	4.22
3	Can return to previously explored topics easily	98	17	10	5	0	130	4.60

4	Exploring many topics without confusion	21	24	25	58	2	130	3.03
5	Addressing interesting information in e-journal with ideas in the brain	34	54	33	8	1	130	3.86
							Average	3,98

The table above shows the individual's ability to stop exploring digital information sources, then explore information that has been found in depth, after that exploring again completes the understanding that has been obtained when exploring information that is included in the high category. These capabilities include stopping exploring when they have obtained information; the system in the e-journal encourages to stop exploring deeper; can return to previously explored topics easily; explore many topics without confusion; addressing interesting information in e-journal with ideas in the brain.

Discussion

Talking about "Serendipity" is like talking about a pleasant accident. In terms of searching for the information needed, finding appropriate information or "clicking" accidentally is a very pleasant thing even very profitable. The results of the discussion above show that the e-journal service in the Airlangga University Library encourages serendipity for lecturers when accessing it. In this case, indeed, every search engine seeks to encourage serendipity because most serendipity information is more relevant to the information needs of each individual, but not all applications to synthesize information seekers encourage serendipity (McCay-Peet & Toms, 2011). The importance of serendipity in the information retrieval process is often ignored by information search engine service providers, whereas what is supposed to be done is better system development to encourage serendipity.

When each individual is facing the potential for serendipity, the opportunity is truly beneficial for the individual, from which it can be assessed that a search engine encourages serendipity. The potential for serendipity is experienced by each lecturer when searching articles on library e-journal services. But the occurrence of serendipity is not only driven by the system of

information search engines, but also from the experience of the seeker in exploring information in the search engine system (Conrad, 2015). Lack of experience can also lead to low potential for serendipity, and the reverse experience in seeking information further increases that potential. In this case, the information seeking process is the lecturer, who in fact they often do the search process for teaching material, or references for the research being carried out, which the search process is very often carried out even on a daily basis. So that their skills and experience in information exploration can be very high, they are accustomed to doing so. This is shown from the results of this study that all indicators of the occurrence of serendipity in the information seeking process in library e-journal services are included in the high and very high categories.

From the previous presentation, it was shown that the thing that allows the potential for serendipity in the information seeking process was assessed from two aspects, namely the first from the aspect of search system provision which in this study was the search engine system of the library e-journal service. That the system must indeed be designed for the potential for serendipity. The role of the search engine system maker must ensure that not only one right information is presented at the right time but also a large amount of information. The information presented is in accordance with the keyword or information needs of the user. Information system providers must use their own strength to gain insight into the information content needed by users. Serendipity must be of particular concern to information search engine service providers (not only e-journaling, but applies to other information search engine service providers), because there are very few that place the potential of serendipity in information seeking as a top priority. The second aspect is from the information seeker, that the researcher must have information search experience and ability, so that the seeker can "move agile" in the exploration of information and get information according to their needs.

Conclusion

From the results of the research on serendipity behavior in the use of journals, it can be seen that the phenomenon of individual serendipity is faced with information seeking in the form of physical space, namely libraries and digital spaces, namely web pages. Physical space facilitates serendipity in material access of users directly, space for browsing users, something that makes users stop at information that matches their preferences to be explored more deeply. Digital space will develop so as to reduce the chance of meeting serendipity. The need to develop methods to

create elements of serendipity in digital systems. But in this study it is still within the scope of the digital space, not in physical space. Therefore, further research can expand the topic of serendipity in physical space, such as libraries or other information institutions.

For further research related to the topic of serendipity in information retrieval, research can be done on the OPAC search engine (online public access catalog). Given that the OPAC search engine is designed by each library itself. This study can see whether each library in designing OPAC encourages the occurrence of serendipity in library users when using OPAC, which is a lot of literature that states that the findings of serendipity information are more relevant to the information needs of users.

Referensi

- Agarwal, N. K. (2015). Towards a definition of serendipity in information behaviour. *IR Information Research*, 20(3), 1-16.
- Andriaty, E. (2005). Pemanfaatan jurnal elektronis dan kemutakhiran informasi yang disitir dalam publikasi primer. *Jurnal Perpustakaan Pertanian*, 14(2), 25-31.
- Bungin, B. (2005). *Metodologi penelitian kuantitatif*. Jakarta : Kencana.
- Cahyono, H. A. (2011). *Perilaku pencarian informasi: Studi kasus di Jurusan Syari'ah Sekolah Tinggi Agama Islam Negeri Pamekasan*. (Skripsi). Depok: Universitas Indonesia.
- Case, D.O. (2012), *Looking for Information: a survey of research on information seeking, needs and behavior*. Bingley: Emerald Group Publishing,
- Conrad, L. Y. (2015). Guest post: Lettie Conrad on understanding the researcher experience. *The Scholarly Kitchen*. Retrieved from <http://scholarlykitchen.sspnet.org/>
- Cunha, M.P. (2005), *Serendipity why some organizations are luckier than others*, FEUNL working paper series. Lisbon: Universidade Nova de Lisboa.
- Damanik, A. F., & Ari, S. (2015). Tingkat pemanfaatan e-journal clinicalkey oleh mahasiswa kedokteran di Perpustakaan Fakultas Kedokteran Universitas Islam Sultan Agung Semarang. *Jurnal Ilmu perpustakaan*, 4(3), 1-8.
- Djamarin, M. (2015). *Pemanfaatan jurnal elektronik oleh pemustaka di perpustakaan Universitas Negeri Padang*. (Skripsi). Padang: Universitas Negeri Padang.
- Foster, A. E., & Ellis, D. (2014). Serendipity and its study. *Journal of Documentation*, 70(6), 1015-1038, <https://doi.org/10.1108/JD-03-2014-0053>
- Foster, A. E., & Ford, N. (2007). Serendipity and information seeking: An empirical studies. *Journal of Documentation*, 59(3), 321-340. <https://doi.org/10.1108/00220410310472518>
- Foster, A. & Ford, N. (2003), *Serendipity and information seeking: an empirical study*, *Journal of Documentation*, 59 (3), 321-340.
- Hasan, T. (2013). *Kajian pemanfaatan jurnal online pada perpustakaan Universitas Riau Pekanbaru*. *Jurnal Gema Pustakawan*, 1(1), 24-35.
- Imtihana, O. (2012). *Perilaku pencarian informasi di kalangan profesional (Studi deskriptif terhadap Dosen Sejarah di Universitas Airlangga, Universitas Negeri Surabaya dan Universitas Negeri Malang)*. (Skripsi). Surabaya: Universitas Airlangga.

- Istiana, P. (2016). Pemanfaatan e-journal oleh mahasiswa: Kajian analisis sitasi terhadap tesis mahasiswa klaster saintek Universitas Gadjah Mada. *Berkala Ilmu Perpustakaan dan Informasi*, 12(2), 150-158.
- Jayanti, T. P. (2017). *PERILAKU pencarian informasi Dosen Fakultas Hukum Universitas Airlangga Surabaya*. (Skripsi). Surabaya: Universitas Airlangga.
- Line, M.B. (1974). Draft definitions: information and library needs, wants, demands and uses. *Aslib Proceedings*, 26(2), 87.
- Makri, S., & Blandford, A. (2012). Coming across information serendipitously-Part 2: A classification framework, *Journal of Documentation*, 68(5), 706-724, <https://doi.org/10.1108/00220411211256049>
- Maloney, A., & Conrad, L. Y. (2016). Expecting the unexpected: Serendipity, discovery, and the scholarly research process. Thousand Oaks, CA: SAGE Publishing. doi: 10.4135/wp160129.1.
- Martin, K., & Quan-Haase, A. (2016). The role of agency in historians' experiences of serendipity in physical and digital information environments. *Journal of Documentation*, 72(6).
- Massis, B. E. (2011). Serendipitous: Browsing versus library space. *New Library World*, 112(3/4), 178-182. <https://doi.org/10.1108/03074801111117078>
- McCay-Peet, L., & Wells, P. G. (2017). Serendipity in the sciences: Exploring the boundaries. *Nova Scotian Institute of Science*, 49(1), 97-116.
- McCay-Peet, L., & Toms, E. (2011). Measuring the dimensions of serendipity in digital environments. *IR Information Research*, 16(3), 1-6.
- Merton, R.K. (1948), The bearing of empirical research upon the development of social theory. *American Sociological Review*, 13(5), 505-515.
- Rimmer, J., Warwick, C., Blandford, A., Gow, J. & Buchanan, G. (2008), An examination of the physical and the digital qualities of humanities research. *Information Processing & Management*, 44(3), 1374-1392.
- Rubin, V.L., Burkell, J. and Quan-Haase, A. (2011), Facets of serendipity in everyday chance encounters: a grounded theory approach to blog analysis. *IR Information Research*, 16(3)
- Rusydi, I. (2014). Pemanfaatan e-journal sebagai media informasi digital. *Jurnal Iqro'*, 8(2), 200-210.
- Singarimbun, M., & Effendi, S. (1995). *Metode penelitian survai*. Jakarta : Pustaka LP3ES Indonesia.
- Skageby, J. (2012). The irony of serendipity: disruptions in social information behaviour. *Library Hi Tech*, 30(2), 321-334. <https://doi.org/10.1108/07378831211239988>
- Solomon, Y., & Bronstein, J. (2016). Serendipity in legal information seeking behavior: Chance encounters of family-law advocates with court rulings. *Aslib Journal of Information Management*, 68(1), 112-134. <https://doi.org/10.1108/AJIM-04-2015-0056>
- Sugiyono (2002) *Statistik untuk penelitian*. Bandung : Alfabeta.
- Taylor, R. S. (1968). Question-negotiation and information seeking in libraries. *College & Research Libraries*, 29(3), 178-194.
- Ulum, A., & Setiawan, E. (2013). Kajian pemanfaatan koleksi dan layanan e-journal di Perpustakaan Universitas Surabaya. *Prodising Peranan Jejaring Perpustakaan dalam Meningkatkan Kompetensi Pustakawan, pada Konferensi Musda II FPPTI Jatim 2013*. Surabaya: FPPTI Jatim.
- Watson, E. A., & Fishing, G. (2008). *Serendipity in library and information science*. Chapel Hill: Gary Marchionini.

Wilson, T.D. (1999). Models in information behaviour research. *Journal of Documentation*, 55(3), 249-270.