A Conceptual Framework for Studying Factors Influencing Distance Learners' Access and Use of Information Sources

กรอบแนวความคิดสำหรับศึกษาปัจจัยที่มีอิทธิพลต่อการเข้าถึงและการใช้แหล่งสารสนเทศของผู้เรียนทางไกล

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Abstract

The aim of this study is to propose a new conceptual framework for studying how determinants of information sources selection can affect distance learners' information-seeking behavior when seeking to select between a perceived sources' accessibility and quality to achieve their academic assignments. Two theories, namely, the *Least Effort Theory,* and the *Cost-Benefit Theory* are employed for a research framework including literature review to analyze which of two parameters, accessibility or quality, relating to how often distance learners use information sources.

The review reveals four determinants (convenience, ease of use, relevance, and reliability) that not only influence distance learners' selection of information sources but they also reflect contradictory conclusions of previous research consisting of two theories: (1) the *Least Effort Theory* focuses on the selection of the source accessibility (convenience, and ease of use), and (2) the *Cost-Benefit Theory* concentrates on the selection of

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the source quality (relevance, and reliability).

With the advent of web technology, it is challenging for information system designers to design libraries to serve the desire of distance learners to obtain both high quality information and source accessibility at the same time. This perspective leads to information systems designed according to the user-centered approach and corporate web portal to provide the best information services to meet distance learners to fulfill academic assignments. Moreover, the suggestion of this study is that this conceptual framework should be verified by conducting the empirical future research.

Keywords: Source accessibility, Information quality, Least-Effort Theory, Cost-Benefit Theory, Distance Learners

บทคัดย่อ

วัตถุประสงค์ของการศึกษาครั้งนี้ เพื่อเสนอกรอบแนวความคิดศึกษาตัวแปรที่สำคัญส่งผลกระทบต่อพฤติกรรมการแสวงหาสารสนเทศของผู้เรียนทางไกล ขณะเผชิญการตัดสินใจเลือกระหว่างการเข้าถึงแหล่งกับคุณภาพสารสนเทศเพื่อการศึกษา และใช้ 2 ทฤษฎีคือ (1) ความพยายามน้อยที่สุด และ (2) ต้นทุนและผลตอบแทน รวมทั้งทบทวนวรรณกรรมที่เกี่ยวข้องเป็นกรอบวิจัยสำหรับวิเคราะห์สองพารามิเตอร์ คือการเข้าถึงแหล่งสารสนเทศหรือคุณภาพสารสนเทศที่มีความสัมพันธ์กับความถี่การใช้แหล่งสารสนเทศของผู้เรียนทางไกล

ผลการวิเคราะห์พบสี่ตัวแปร (1) ความสะดวก (2) การใช้งานได้ง่าย (3) ความสัมพันธ์เกี่ยวข้องเกี่ยวข้องและ (4) ความน่าเชื่อถือได้ ตัวแปรเหล่านี้ไม่เพียงแต่มีอิทธิพลต่อการเลือกแหล่งสารสนเทศ แต่ยังเป็นตัวแปรที่บ่งบอกถึงความขัดแย้งของสองทฤษฎี (1) ความพยายามน้อยที่สุดต่อการเข้าถึงแหล่งสารสนเทศและ (2) ต้นทุนและผลตอบแทนพิจารณาคุณภาพสารสนเทศเป็นหลัก

ความเจริญด้านเว็บเทคโนโลยี เป็นการท้าทายผู้ออกแบบระบบสารสนเทศห้องสมุดที่ช่วยบริการผู้เรียนทางไกลให้ได้สารสนเทศที่ต้องการทั้งคุณภาพสูงและความสะดวกการเข้าถึงแหล่งสารสนเทศในเวลาเดียวกันดังนั้นการออกแบบระบบ

สารสนเทศจึงเน้นผู้ใช้เป็นศูนย์กลางและร่วมกับนวัตกรรมเว็บเพอร์ทัลเป็นแหล่งรวบรวมบทความและลิงค์เว็บไซต์ต่าง ๆ เพื่อความรวดเร็วในการค้นหาสารสนเทศ นอกจากนี้แล้วได้เสนอแนะว่าควรมีการทดสอบกรอบแนวความคิดโดยการทำวิจัยเชิงประจักษ์ในอนาคต

คำสำคัญ: ความสามารถเข้าถึงแหล่งสารสนเทศ, คุณภาพสารสนเทศ, ทฤษฎีความพยายามน้อยที่สุด, ทฤษฎีต้นทุนและผลตอบแทน, ผู้เรียนทางไกล

Introduction

Information access is a very broad concept in information sciences. In open access, users can access information directly, but they cannot do so in close access. However, users confront with factors affecting information access both in physical and electronic forms. Specially, the issues of information access of distance learning are discussed. Distance learners also prefer in information-seeking convenience over quality. Therefore, their behaviors reflect two theories of selecting information sources: the *Least Effort Theory* and the Cost-Benefit Theory.

The widespread of information and communication technology impact distance learners' information-seeking strategies. For this reason, the information-system designers should consider user-centered approach and web technology building new information systems. Finally, the researcher concludes summaries and perspectives concerning information system for distance learners and proposes a conceptual framework for future research in area information behavior.

2. Definitions of accessing information

The concept of accessing information has roots in a variety of disciplines such as Library Studies (i.e., Access Services Librarian), Information Science (i.e., Information Retrieval and System), Information on Society (i.e.,

Open Access to Network), and other arenas (Borgman, 2000). As a result, accessing information is a complex field, which covers a wide range of disciplines. This study is concerned with information service and social institutions: libraries, archives, museums, management information systems, and records management (Buckland, 1991; Borgman, 2000).

However, the issues of accessing information consist of both open and close access implication. Buckland (1991) gives the meaning "open access" and "close access" in the context of information services of institutions. Open access means that users can access the materials or information services by themselves from a library shelf or by delivery of information to users at home or work. On the other hand, the museum is an example of the close access approach because users cannot access the materials from the collection directly.

3. Information access in the context of distance learning

3.1 Distance learning

Contextual distance learning, a form of study where the learners and tutors are separated by geographical distance, provides opportunities to individual from all walks of life to seek a better life and gain access to education without leaving their jobs in order to attend classes (Boadi & Letsolo, 2004, p. 189). For this reason, institutions of higher education world-wide have offered alternatives to traditional campus-based, semester-long, face-to-face classes. Most offer some form of on-line courses; many are presented in intensive blocks of fewer than ten weeks (Mabry, 1988). As universities add these new formats to their programs, the changes in the course length and the interface of location of students, instructors, and resources create issues for accessing necessary research material in a timely fashion.

3.2 Characteristics and issues of distance learners

Distance learners have a diversified student population and have characteristics differing from students in traditional universities (Galusha, 1997). The majority of the students are adults who are mature, older, and are more likely to have experience in employment, certain their goal, a college degree, and family responsibilities. This, of course, varies by facilitator style of the online teachers as (Moore & Kearsley, 2005, p. 166). Fulcher and Lock (1999) states that "remote access is the main issue of distance learners" because their success in study related to the library access and use.

3.3 Remote Access

The researcher focuses on remote access to information services and resources of academic libraries for distance learners. Remote access, in terms of distance education, allows equal quality of education access for everyone regardless of the individual's place of residence, income, and age (ACRL, 2008). The Standards for Distance Learning Library Services (ACRL) academic requires libraries to provide distance learners to with the same standard of access to materials as is provided for students on campuses.

4. Information system design to meet learners' information needs

It is important that information-system designers have to know and understand users' information needs and their information-seeking behavior because they will employ this information to analyze and design information systems to services and meet users' information needs.

4.1 Information needs

Generally, an information need occurs when seekers feel uncertainty or lack knowledge that they need to resolve their problems. Well-known researchers for information seeking behavior define the

concept of information need. Wilson's (1981) states that needs being cognitive, affective, or physiological. Belkin, Oddy, and Brooks (1982) suggest that information needs occur because individuals recognize something anomalous in their knowledge. Dervin and Nilan (1986) and Dervin (1999) follow a sense-making approach. The users need information to make sense of a particular problem situation. Dervin distinguishes four components: situation, bridge, gap, and outcome. However, information needs is subject needs relying on individual, group of users, and organization. In this study, the focus here is on distance learners' information needs.

4.2 Distance learners' information needs

Distance learning is student-centered learning where the teacher acts as a facilitator; meanwhile, distance learners have broad differences in individual personality, in maturity, age, experience in employment, level of education, and information needs. With diversity characteristics of distance learners, their information needs are most information to complete their homework as traditional students but distance learners need more specific information acquisition in terms of support for their research projects, theses, dissertations and discussion with online classmates and professors (Thorsteinsdottir, 2001).

Moreover, distance learners also require various information services to access materials in more diverse ways than typical on-campus students and to solve their problems because they cannot meet instructors, classmates and librarians directly. To satisfy their information needs, a wide variety of channels (i.e, Internet, OPAC, public library, group meeting, Moodle, Blackboard, and other institutions) are employed (Malki, 2005, p. 20). Obviously, the academic libraries have to provide information resources and services to meet information need of distance learners.

Leong (2007) states that distance learners' characteristics are typically workers studying part-time and lacking of times. They often are able to study after finishing regular their work or late at night or weekends. At that time, the academic libraries are closed. As a result, it is important for academic libraries to provide services 24 hours a day and 7 days a week for distance learners because she found that distance learners need to access library anytime and anywhere to support their study. Moreover, she also identifies that distance learners need accessing full-text online resources to be easily accessible over the quality of contents (p. 77).

4.3 Information system design

Any system has at least two entities and each of which has relationships with each other. For example, the integrated library systems consist of six information sources (components): acquisition, online catalog, circulation, serials, and collection management (Rubin, 2004). Moreover, each information source acts as a function and has activities itself. At the same time, from the perspective of system, it also can share information resources each other linked by communication technology.

On the other hand, from the perspective of users, each person can access information sources by one or more channels via intermediaries such as librarians, and Online Public Access Catalog. Therefore, in the context of libraries, information systems are composed of: library systems, users, and information resources. These information systems are oriented-system approaches as opposed to user-centered approaches.

4.4 User-centered approaches

Choo and Auster state that the research in the field of information-seeking behavior focuses on a system-centered approach (as cited in Case, 2007). The results of research of this approach often failed to satisfy information need of users. To solve this problem, in the early 1970s,

the research in this field shifted away from system-centered toward user-centered system to serve a wider range of the individual users need and satisfy their information needs (Case, 2007).

Allen (1996) observes that user-centered approaches are especially useful because this approach begins with studying information needs of user rather than data. This approach begins with studying and understanding of user characteristics and needs all levels including information-seeking behavior. Therefore, information system designers know how to create the best systems and provide the best resources to match with information needs of their users

In case of distance learners, suffice it to say that user-centered approaches are suitable for solving problem of information needs and for creating information systems. As mention above, “distance learners need to access library anytime and anywhere to support their study”. Moreover, Leong (2007) also identifies that distance learners need access to full-text online resources to be easily accessible over the quality of content. However, there are controversy between the systems and the quality of contents.

This means that ease of access might lead an individual to unreliable quality contents such as Google.com and Yahoo.com (i.e., non-peer-review). On the other hand, difficulty of access might mean access to a high quality journal like electronic databases (i.e., peer review) (Malki, 2005). Therefore, how library can provide ease, convenience, and high quality of contents to service the users at the same time.

It is challenging for libraries to serve distance learners to obtain both high quality of contents and ease of use and convenience at the same time. Inevitable, the libraries; therefore, have played an important role in planning information system design to provide information resources, access, and support services for distance learners, which have variety ways to choose to access to information sources to meet their information needs.

4.5 Web portal

According to Jackson, the web portal amalgamates multiple information resources such as electronic databases, web sites, and other electronic resources. It also allows users to go to one location, “perform high-quality search of high-quality electronic resources” (as cited in Rubin, 2004). With the potential of the web portal, information system designers have to consider the web portal to integrate into information system of library.

Furthermore, Jackson states that web portal not only provides a user to conduct a single search of multiple search resources but it also does easy one-stop access to other electronic information resources. After implementing web portal, users will be asked to evaluate satisfaction with library services and resources to improve in serving a wider range of the individual users need and satisfy their information needs because there is no system perfectly and human information needs always change as well (Allen, 1996).

5. Analyze principle theories and constructs of the conceptual framework

Distance learners encounter with various problems of accessing information for their finish assignments and other academic activities because they are the diverse student population. While some distance learners know how to search Social Online Public Access Catalog (SOPAC) via smart phones. Others do not know even how to log in the library’s information system. Furthermore, they also view the libraries that have difficulty searching through catalogs and electronic databases because they do not know how to search advanced search and heading search.

Therefore, these distance learners are subject to frustration related to inaccessibility of library information resources and the irrelevance of existing

materials to meet their assignments. The past several literature are shown that perceived source accessibility (e.g., convenience, ease of use, and fast information retrieval) has a played pivotal role in making a decision of distance learners to choose the information source regardless of the quality of information (Covey, 2003; Kelley & Orr, 2003; Liu &Yang, Liu & Yang, 2004; Leong, 2007). However, two theories have been found in studies of selecting information sources as early as the 1960s to present: The *Least Effort Theory,* and the *Cost-Benefit Theory*.

5.1 The Least Effort Theory (LFT)

The *Least effort Theory* was originally developed in 1949 by George Zipf. He states that each individual "probably least average rate of his expenditure" (Zipf, 1949, p.6). This theory has been restated in library literature as Mooers' Law. "An Information retrieval system will tend not to be used whenever it is more painful and troublesome for a customer to have information than for him not to have it" (Mooers, 1990).

Information seekers' preference for information sources by considering perceived accessibility information source reflecting the *Least Effort Theory,* also known as the law of least effort is the most relevant to information sources selection. To support the LFT, the previous empirical research on information-seeking behavior reveals that seekers select sources based on ease of use and accessibility. Especially, in a study area of information-seeking behavior, the LFT was picked by Thomas Mann (1993) as one of the principles guiding information-seeking behavior and hence the design of modern libraries. He also describes the LFT in terms of library and information usage reflecting in the following statement:

> Most researchers (even "serious "scholars) will tend to choose easily available information sources, even when they are objectively of low quality, and further, will tend to be satisfied

> with whatever can be found easily in preference to pursuing higher-quality sources whose use would require a greater expenditure of effort. (p. 91)

However, distance learners today have many information sources to choose from (i.e., libraries, World Wide Web, and electronic databases). Therefore, information researchers have been studying what influences distance learners' decision on sources selection. These studies generated both some consistent and also some conflicting findings, covering a number of potential factors that may influence distance learners' and other professionals' sources selection.

5.1.1 Perceived accessibility

Accessibility has been defined in different perspectives for over the years in the literature. Culnan (1984) defines perceived sources accessibility depending on the level of effort required to gain access a particular source. Zimmer et al., (2007) define accessibility as the ease with which information seekers can gain access information sources to acquire information. Bronstein (2010) also used (a) physical proximity, (b) ease of use, (c) full-text availability, (d) language, and (e) time saved to report accessibility.

Therefore, the perceived accessibility is an important factor influencing the selection of information sources, and it has been empirical researched on the information-seeking behavior in different groups of users. Several previous studies have found that information seekers considered source accessibility as more a dominant factor in source selection than was source quality (Allen, 1977; Bronstein, 2010; Culnan 1984; Gersberger & Allen, 1968, Hardy 1982). Moreover, past literature reported that information seekers' selection of types of information sources advocate the *Least Effort Theory*.

For example, O'Reilly (1982) empirical study of 163 welfare agency employees concludes that they prefer to use the lower quality information as it is easily accessible. Culnan (1984) surveyed 22 undergraduates, 39 graduate students, and 14 professional MIS consultants. The researcher found that accessibility sources influenced these participants making the selection of a particular source. Andersen et al. (2001) also surveyed 872 aerospace engineers to select sources and channels, and found that they first sought information by using personal collections, then consulted with co-workers and outsiders, and lastly consulted with librarians. Similarly, Fidel and Green (2004) examined 32 engineers' selection of information sources. These engineers considered accessibility is the most factors when selecting a source.

These empirical evidences revealed that perceived source accessibility is as decisive factor in the information seekers' choice of information sources meanwhile these empirical consistent findings in literature have been that information seekers' selection information sources tend to follow the *Least Effort Theory*. Several previous studies have been showed that user perception of source accessibility has positive relationships with the frequency of use of information sources (Allen, 1977; Bronstein, 2010; Gersberger & Allen, 1968). This impels that the higher the frequency of information use, the more the perceived source accessibility is seen to be.

For example, Bronstein (2010) investigated library and information science students for their academic and personal information needs. They access to sources that those are easier to use more frequently than those are more difficult to use. However, the perceived accessibility in this study is operationalized as the convenience and ease of use. It is also a predominant construct of the conceptual framework. Therefore, the research explains in terms of convenience, and ease of use.

5.1.1.1 Convenience

The American Heritage Dictionary of the English Language (2000) defines convenience as “something that increases comfort or saves work.” In terms of seeking information, convenience is defined as a critical factor in information seekers’ choices and actions depending on situation and context during all stages of the information-seeking process (Connaway, Dickkey, & Radford, 2011). Kerr and Hiltz (1982) state that convenience is a closer rather than more remote information source that information seekers can obtain the information they need. In such circumstances, distance learners look for conveniently available information to meet the deadlines.

Some empirical studies, Boadi and Letsolo (2004) examined 783 distance learner’s information needs and information-seeking behaviors. They found that distance learners used their own academic libraries more than did other libraries near their hometown. Liu and Yang (2004) also investigated 290 distance learners’ information-seeking behavior. They showed that distance learners preferred convenience and ease of use over the quality of content.

5.1.1.2 Ease of use

Davis (1989) defined ease of use as “the degree to which a person believes that using a particular system would be free of effort” (p. 320). In terms of seeking information, ease of use is defined as information seekers can access information systems to get their information needs quickly anytime and anywhere. The information systems can be academic setting, working setting, personal setting, and to name a few. For example, Gersberger and Allen (1968) investigated 19 electronic engineers to select nine information channels. They found that ease of use affects the frequency of use of information sources. Malki (2005) investigated 360 graduate distance learners in web-based courses. The researcher

found that distance learners choose the Internet and electronic resources more often than traditional resources due to ease of access, convenience, and fast communication channels. Bawden and Vilar (2006) also found that "Users believe that web search is fast and easy, providing immediately access to information and giving them what they want" (p. 349).

5.2 The Cost-Benefit Theory

A cost-benefit paradigm is wildly adopted by both organizational and information science researchers. The *cost-benefit theory* demonstrates that information seekers select information sources considering both costs and benefits (Hardy, 1982). This means that the *Cost-Benefit Theory* proposes that information seekers select information sources on the basis of expected benefits and expected cost using them. Cost-benefit in terms of information sources, Gerstberger and Allen (1968) define the cost or effort relationship with the use of information sources based on two kinds of perception: (1) perceived cost refers to physical and intellectual effort or time expended, and (2) perceived benefit also refers to information obtained or information retrieved.

Hardy (1982) investigated 968 Forest Service professionals. He confirmed that scientists and engineers do evaluate information quality on the basis speed (cost) and content (benefits), not cost alone. However, Bronstein and Baruchson-Arbib (2008) stated that "the expected benefits of information are more important than the expected cost". They also reveal that this theory focused on the quality of the information provided by the channel and the quality of the information is the decisive factor in choosing an information channel.

5.2.1 Perceived quality

Perceived quality of information sources referred to the *Cost-Benefit Theory* that "focused on the quality of the information provided

by the channel" (Bronstein & Baruchson-Arbib, 2008) while sources quality is dominant factor affecting seekers' the selection of information sources. The term information quality has many meanings and several studies have defined as from different ways over the years because this concept is subjective. Zmud (1978) stated that information quality is reflected in massages that are relevance or specific to the problem. Hardy (1982) also defined information quality as relevancy to the seekers' information needs. Allen (1977) defined the information quality that can be obtained from the source as technical quality that is the reliability or value of the information obtained.

Some empirical evidence, Woudstra and Van den hoof (2007) investigated 56 employees from government organizations. They found that "source quality is the most dominant factor in the selection of human information sources" (p. 1267). In a study on source quality, several previous researches identified that the main dimensions in evaluating information-source quality are defined as relevance, reliability, accuracy, comprehensiveness, and validity (O'Reilly, 1982; Taylor, 1968). Similarly, Auster and Choo (1993) surveyed 207 the environmental scanning behavior of CEOs in two Canadian industrials. They found that perceived quality of sources is the more important factors in explaining source use rather than perceived accessibility of sources. They also uncovered that relevance and reliability are the dominant variables in perceived quality of the conceptual framework.

5.2.1.1 Relevance

The relevant information is defined as information that is needed and useful with respect to the goals and activities of the respondent's firm. Relevance appears to be a subjective quality because it depends on the information user. Saracevic (1975) stated that relevance can be separated into two categories: relevant to the user and relevant to topic. In the former, information seekers believe that information retrieved from information sources can help to meet their information needs. Supporting

this point, Schamber (1994) stated that “the user’s decision to accept or reject information retrieved from an information system” (p. 3). In the latter case, information seekers consider that items are about the subject. O’Reilly (1982) determined that relevance is a main dimension of perceived source quality. However, from user’s perspective, relevance has a high correlation with content that information resources contain, and relates to the fulfillment of information seekers’ goals. For example, Vakkari and Hakala (2000) studied 11 graduate students focusing on information searching for a complex task. They found that those students considered the criterion of topicality of information of content more than 40% in each stage of information seeking.

5.2.1.2 Reliability

The reliability is the extent to which information is correct and reliable. The information is reliable when it is authoritative and dependable. It is information that you personally trust. Previous studies revealed that reliability or trustworthiness of information sources may vary according to a person’s experience, goals, and preference regardless of whether a person performs the same tasks or different tasks. Taylor (1968) described reliability as “the trust a user has in the consistency of quality performance of the system and its outputs over time” (p. 64).

The researcher comes up with these previous studies predominately done in variety contexts to pave the way in analyzing the factors influencing distance learners on information-seeking behavior. The findings of this study reflect two schools of thought or models of selecting source preference as shown in Table1. Actually, the first model is closely connected to the Least Effort Theory that has played a pivotal role in governing and predicting the selection of distance learners’ perceived accessibility of sources (convenience, ease of use) while sacrificing the quality of the information to be obtained. The second model proposes the Cost-Benefit Theory that focuses on the quality of information (relevance, reliability).

Table 1 summaries the two schools of thought and highlights the key independent variables used in explaining factors influencing distance learners' choice of source preferences

Schools of thought	Description	Independent variables	Dependent variable
Perceived accessibility of sources (the *Least Effort Theory*)	Perceived accessibility of sources has been defined from different perspectives across a period of several years and it is a multi-faceted construct that could be explored on different levels. Culnan (1984) defines source accessibility as the level of effort required to use a particular source. She also identifies dimensions of accessibility to include physical proximity to the sources and effort needed to access them. Previous studies on information-seeking behavior reveal that two key determinants of perceived source accessibility (i.e., convenience, ease of use) affect the selection of information sources. This implies that distance learners' preference for easy to use and accessible sources, and they also make their decision upon the *Least Effort Theory*.	Convenience Ease of use	Frequencies
Perceived quality of sources (the *Cost-Benefit Theory*)	Bronstein and Baruchson-Arbib (2008) define perceived quality of sources referring to the *Cost-Benefit Theory* that focused on the quality of the information provided by the channel. Other researchers also defined perceived quality as a set of information quality referring to relevance, reliability, accuracy and timeliness (Zmud, 1978; Taylor, 1986). More importantly, previous studies on information-seeking behavior discover that two key factors of perceived source quality (i.e., relevance, and reliability) influence the frequency of using that information sources. This implies that distance learners select information sources on the basis of expected benefits and the expected costs of using them.	Relevance Reliability	

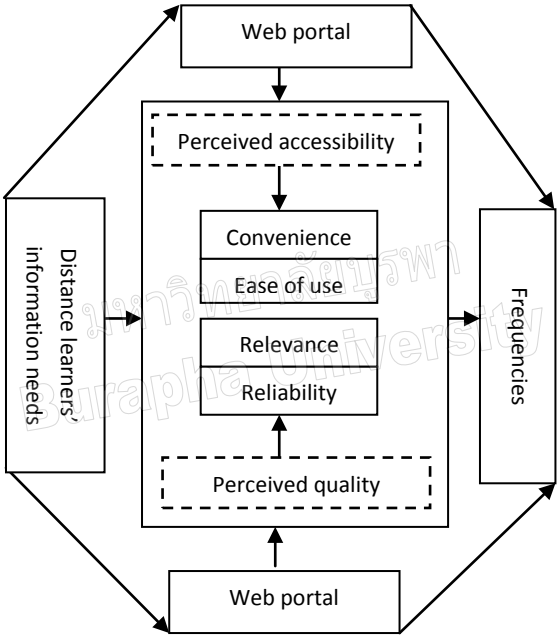
6. Summaries and perspectives concerning access and use of information sources

Access to information and availability of information sources are important to distance learners because their access to information is central to success in their studies (Fulcher & Lock, 1999). However, they encounter with libraries services in terms of physical access: limited opening hours of libraries, long traveling times to the nearest library, and the cost of obtaining information (Thorsteinsdottir, 2001). On the other hand, distance learners need convenience with easy access to information and easy-to-use online tools and resources, but libraries cannot provide these they needs (Covey, 2003).

Based on two theories of selecting information sources in this study, the researcher reveals that there are two schools of thought and highlight key variables that are determinants of information sources selection of distance learners' information-seeking behavior as shown in Table1. Furthermore, knowing and understanding these factors help information systems designers to consider making redesign library systems to balance both system services and quality of contents. As a result, distance learners meet their information needs to help them to be successful in their study.

With the proliferation of information and communication technologies, distance learners not only seek the traditional libraries but also do the new information sources such the mobile devices, WWW, institutional repository, and web portal. The researcher hopes that the contribution of this study should increase understanding of information system designers to consider information-seeking behaviors of distance learners. The researcher also expects that the findings could make an important theoretical implication of this study. Therefore, the researcher proposes a new conceptual framework for conducting research in the near future as shown in Figure 1.

Figure 1. The relationship among these constructs represented in a conceptual framework



The researcher also suggests that it would be useful to examine three dominant factors: perceived accessibility, and perceived quality. The perceived accessibility is analyzed in terms of convenience and ease of use. The perceived quality is also analyzed in terms of relevance and reliability. Finally, the researcher recommends that this conceptual framework should be verified by conducting the empirical future research with Thai students and ASEAN students who studying at universities in Thailand.

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