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# A model of planned and unplanned information-seeking behaviour

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## Abstract

The main purpose of this article is to present a model for information-seeking behaviour with an emphasis on unplanned and planned behaviour of users in using library resources and services. The working method was that, reviewing the literature and previous information behaviour models, such as Wilson, Ellis, Kuhlthau, and Dervin models, this article proposes a novel model of information-seeking behaviour for library users. Our model of information-seeking behaviour was developed by combining the existing models of planned information-seeking behaviour with the focus on the factors affecting unplanned rather than planned behaviour of users in accessing resources or services. Our proposed model for information-seeking behaviour of clients has two main parts. The first part planned behaviour resulting from a problem or a certain information need according to which the user seeks to find information in a planned manner. The second part deals with unplanned behaviour shaped by a hidden or uncertain information need. Finally, both types of behaviour can result in the discovery, extraction, collection and use of information.

## Keywords

Information-seeking behaviour model; information-seeking behaviour; unplanned behaviour; unplanned information-seeking behaviour.

## 1. Introduction

The ultimate purpose of collecting and organising information resources by libraries is to disseminate them. In this regard, the community of librarians exhibits actions and behaviours when using library resources and services. These behaviours are expressed in the form of information-seeking behaviour, information behaviour and information search behaviour. In the field of library and information science, information-seeking behaviour is a type of behaviour that is shaped in a planned manner by the user who has a predetermined need.

In general, there are two main groups of planned behaviour and unplanned behaviour when users use library resources and information services. In the view of Ajzen [1], the planned behaviour of individuals can be influenced by subjective norms, attitudinal factors and perceived behavioural control which may lead to behavioural tendencies. Therefore, in the case of planned behaviour, library users use library services with a predetermined intention through a rational decision-making process. Based on the existing definitions in the field of marketing [2–5], the unplanned behaviour of individuals refers to their impulsive and immediate decisions on the use of resources or services that are not planned in advance. This type of information-seeking behaviour occurs in the moment and in an undetermined way that is irrelevant to one's clear and defined needs.

The official statistics demonstrate a decline in the use of libraries and related information centres [6,7]. To develop and promote a culture of visiting libraries and reading books, the behaviour of users in library environments is of great importance and worthy of being the focus of attention. The role of planned behaviours in shaping the information-seeking

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behaviour of users has been the focus of previous research in the field of library and information science [8–15]. However, another aspect of their behaviour in the use of information resources and library services merits further investigation. Accordingly, the unplanned behaviour of users is an issue in the area of information-seeking behaviours that can play a determining role in using library resources and services.

Library visitors often have an incentive and prior planning for the use of particular resources or services when they come to the library. Nonetheless, these visitors may find other stimuli in the library environment that direct them to use resources or services for which they had no prior plans. Many stimuli can affect library users and their behaviour motivating them to use library resources impulsively in an unplanned manner. Paying attention to this kind of stimuli in libraries can lead to the increased use of library services and referral rates. However, ample research has been done on the planned behaviour known as information-seeking or information-finding behaviour [12,14,16–21]. Various models of information-seeking behaviour have been developed by researchers, such as Wilson, Ellis, Kuhlthau, Dervin, and others; all of which have emphasised the planned behaviour and predetermined information needs of the users. Accordingly, the unplanned behaviour of users has been ignored in these studies and models.

Issues such as random access to routine information by the elderly [22], encounters with the information [23–25], opportunistic discovery of information [26–29], psychological factors in library and information science [30], convenience-based information-seeking behaviours [31], coming across information serendipitously [32], sharing stories to inform creative research [33], incident-based and unexpected discovery of information [34], information acquisition methods of accidental access to information [35] and so forth have been addressed in previous investigations. In addition, studies have also been conducted on online browsing behaviour [36,37], or encountering to information in online systems [38,39]. Such investigations [22–39] can be characterised by some kind of serendipity while users are exposed to their required information during a conscious process and in a serendipitous way. In other words, in these studies [22–39], users are searching for their required and specific information from the beginning. This may happen randomly in the process of searching for information or referring to information centres and libraries when encountering an opportunistic discovery of information. On the contrary, this study addresses unplanned behaviours that are performed immediately in an unconscious way of seeking information with no prior intention or plans in the mind of users. It means that there is no special need to receive this kind of information in advance which is created at the moment of being in libraries.

In a qualitative approach, Harati et al. [40] studied factors that directly affect the unplanned behaviour of users in using library resources and services. However, there is still a lack of direct attention to the unplanned behaviour of library users in previously formulated models of information-seeking behaviour. Hence, the purpose of this study is to present a model of information-seeking behaviour with a different approach to the use of library resources and services taking both planned and unplanned behaviours into account.

## 2. Information-seeking behaviour

Krikelas [41] considers information-seeking behaviour as one's action to identify a message in relation to a perceived need. Marchionini [42] believes that information-seeking is a purposeful process for changing the state of knowledge. Wilson [43] considers human information-seeking behaviours as activities that involve the person in various ways of seeking, using or transmitting information when identifying an information need. Lee et al. [44] have shown that information behaviours are not merely initiated sequentially but potentially in parallel, thus methodical browsing is a means of facilitating searching. Therefore, an information-seeking behaviour can be defined [41–44] as a personal process or action in which the person uses resources or services purposefully with a predetermined need. Based on the above, information-seeking behaviour includes searching or browsing for information in a physical or virtual environment. In this process, individuals acquire the necessary information through encountering information, opportunistically discovering information or randomly accessing information.

Research on informational behaviour has attracted the attention of many scholars, even before the emergence of information science. It can be said that this field emerged concurrent with the time of Royal Society Scientific Information Conference in 1948 [43]. Since then, there has been a great deal of research in the area of information-seeking behaviour. In the field of informational behaviour, some research has employed a step-by-step approach to describe the seeking process [45], known as modelling. There are plenty of models for informational behaviour; some of which are of greater importance in the view of information science authorities and experts.

In 1972, Dervin developed a user-based model known as 'sense-making', which was reviewed and revised in 2003. In the sense-making model of Dervin (Figure 1), the term 'utility-gap situation' is used when studying information needs.

Dervin argues that all information needs arise from a gap in the body of knowledge. These gaps are found in a particular 'situation' and people try to fill them through the use of different strategies. What makes a person bridge the gap is

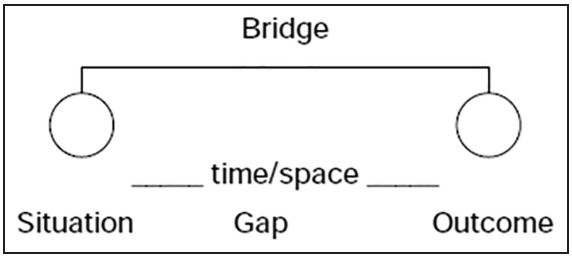


**Figure 1.** Dervin's sense-making framework [43].

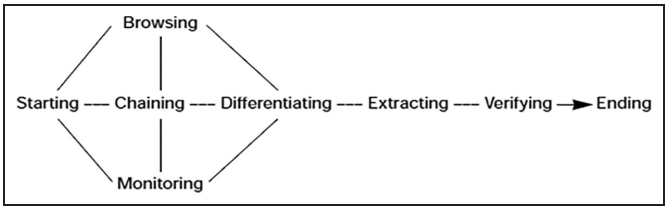


**Figure 2.** Stage process of Ellis's behavioural framework [43].

| Tasks | Initiation | Selection | Exploration | Formulation | Collection | Presentation | Assessment |
|---|---|---|---|---|---|---|---|
| **Feelings** (affective) | Uncertainty (Need recognize) | Optimism | Confusion/ frustration/ doubt | Clarity | Sense of direction/ confidence | Satisfaction or disappointment | Sense of accomplishment |
| **Thoughts** (cognitive) | Vague → | | focused → | | Increased interest | | Increased selfawareness |
| **Actions** (physical) | Seeking relevant information exploring → | | | | seeking pertinent information documenting | | |

**Figure 3.** Kuhlthau's information search process model [39].

either 'benefits' or 'consequences'. Dervin believes that people's behaviours are systematic and free from disorders. This systematic characteristic of their behaviour should not be seen as a fixed position, but rather as a dynamic process [46].

Ellis [47] presented another model for information-seeking behaviour (Figure 2). At each stage of his model, information seekers perform with different levels of accuracy and attention depending on their experiences, knowledge and information needs. Then, they select and collect information based on their certain need.

Examining students' information-seeking behaviour, Kuhlthau [48] planned a six-step model for their information search process (Figure 3). In his model, feelings such as doubt, confusion, anxiety and other emotions play an important role and must be considered natural and necessary factors in the process of information search.

Wu et al. [49] also proposed a model for the students' thesis-writing process based on the Kuhlthau's Information Search Process (ISP) approach. Their study shows that students' thoughts and feelings change along with the model of information-seeking at different stages of the process.

Wilson presented a model of informational behaviour that was first introduced in 1981 and then revised three times. His latest model, presented in 1996, is shown in Figure 4 [43]. In Wilson's model, the information need of the information seeker is affected by the intervening variables. If these variables have a positive effect on the information-seeking behaviour and the information seeker has an active role in seeking information, his or her information behaviour will form and result in processing and using information.

Niedźwiedzka [50] has claimed that there are two strategies for seeking information. One is that the user searches for information individually such as what is emphasised in Wilson's model of information-seeking behaviour. The other is that the user uses other people's help or services. Therefore, he proposed an information behaviour model which emphasises not only the information-seeking behaviour of information seekers but also the information-seeking behaviour of prominent managers as a second category.

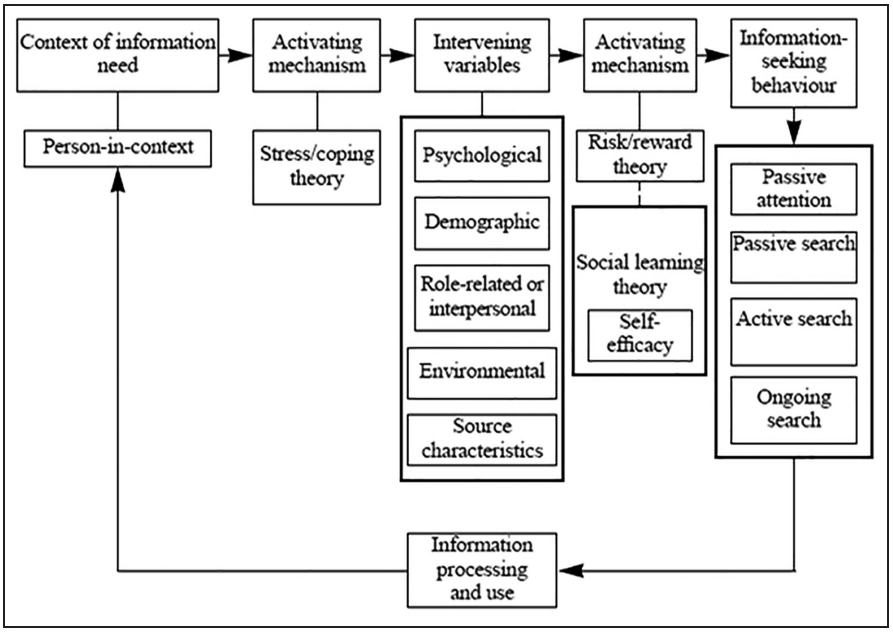


**Figure 4.** Wilson's 1996 model of information behaviour [43].

There are other models including those presented by the studies of Ingwersen [51], Saracevic [52], Spink [53], Bates [54], Meho and Tibbo [55] that neglect the unplanned behaviour of users in seeking information.

The existing models presented for information-seeking behaviour have taken a step-by-step approach to the explanation of information-seeking process based on the need for information, the decision-making process for seeking information and the ultimate selection of information resources. In these information-seeking models, the systematic aspect of individuals' behaviour was focused on. In some models, such as Ellis and Wilson, changes in the information need of individuals during the process of information-seeking and impacts of psychological, demographic, environmental and resource-based factors on their information-seeking behaviour were considered. The considered changes and impacts have nevertheless been in line with individuals' basic needs and wants. In other words, the individual's information-seeking behaviour starts with searching for information resources based on a predetermined information need and continues in a step-by-step process rationally and purposefully to find the required information concerning the decided subject. Therefore, research in the domain of information-seeking behaviour is based on finding some predetermined subjects and resources for which a specific information-seeking behaviour is exhibited by the user.

## 3. Unplanned behaviour

Some empirical evidence has been reported on various factors affecting the impulsive buying of customers in some studies, especially in the field of marketing. There are various definitions of unplanned behaviour in the literature, including immediate behaviour, impulse buying and so forth. For example, Rook and Hoch [56], in their definition of unplanned behaviour, highlighted the cognitive and emotional behaviour of customers that occurs spontaneously at the moment in an impulsive buying. Clover [2], Rook [3], Kim [4] and Burnett [5] also consider such behaviours as a type of customer manner which are formed in the process of making snap decisions arising from excitements or impressions without any prior intention or explicit plan. This means that in an unplanned behaviour, users do not decide to use resources or services in advance, rather they tend to use them due to possible stimuli in the environment.

In line with the study of Harati et al. [40], in unplanned behaviour, users decide to use information resources or library services based on some environmental stimuli or interveners rather than prior plans or decisions. For instance, a client has committed some sort of planned behaviour when he or she decides to visit a library to borrow some books on his or her intended subject. This is while the client has done an unplanned behaviour if he or she uses other books irrelevant to the intended subject under the influence of factors, such as environmental stimuli.

Similar to the information-seeking behaviour, information is processed in unplanned behaviour. Information processing is the process through which one can keep the encountered information in mind so as to be retrieved for future

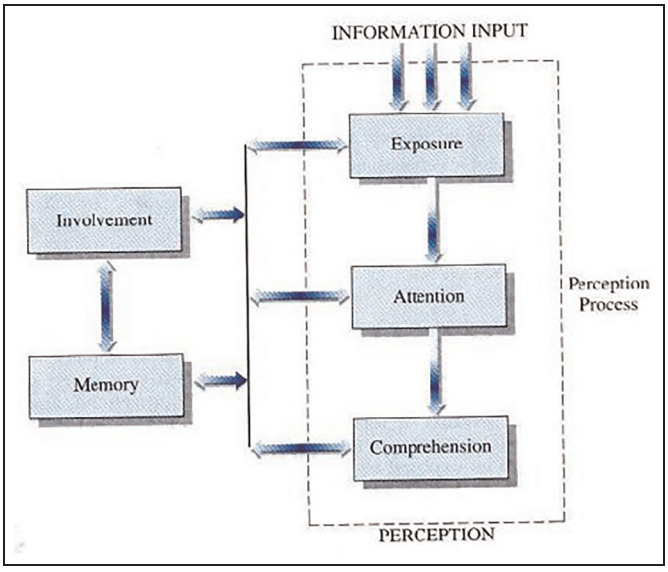


**Figure 5.** Consumer information-processing model [57].

encounters. Consumer information is obtained through the sense of vision, hearing, taste, smell and touch. Figure 5 shows the three factors influencing consumer information processing: perception, the level of consumer involvement and memory. Perception is the process through which one can receive information and make sense of received information. The perception process comprised three phases. In the exposure phase, consumers receive information through their senses. In the attention phase, consumers concentrate on the stimulus and delicately process it. In the comprehension phase, consumers organise and interpret existing information to understand its meaning [57].

Given that exposure to a stimulus is the first step in information processing, the way users respond to the stimulus and the place where they encounter and notice the stimulus have major impacts on their unplanned behaviour.

Consumer involvement in the task has been introduced as the second factor affecting information processing. It is defined as perceived personal importance or related willingness to continue using a product, service or idea. The increased involvement provides customers with a higher level of motivation for attention, comprehension and identification of important information in buying a product. The level of consumer involvement influences whether he/she moves from the exposure to attention and then the comprehension stage of perception. In addition, involvement influences memory functions as an understanding of involvement is central to the understanding of information processing and perception [57].

The final component of the information-processing model is known as the memory function. As can be seen in Figure 5, in each stage of the model, memory plays a role such as guiding the exposure and attention processes by allowing consumers to anticipate the stimuli with which they may come into contact. It also assists in the comprehension process by housing the consumer's knowledge about the environment. This knowledgebase may be accessed to help the person with comprehending the stimulus meaning [57].

From the information-processing perspective, there are three distinct types of memory: sensory memory, short-term memory (STM) and long-term memory (LTM). Figure 6 summarises the inter-relationships of these memory types [58].

The function of sensory memory is to store received information by human senses, albeit temporarily with only a few-second duration. For example, when passing a bookstore, a person may see a book for a moment and find it very interesting. Even though this only takes a few seconds, it will be enough for him to think about whether to buy the book or not. In the case that information is stored for further processing, it is sent to our STM. STM has a limited capacity for the storage of information that we are already processing. LTM allows us to store information for a longer period. Elaborative rehearsal is a cognitive process that is useful in transferring information from STM to LTM. This process deals with making sense of stimulus by linking the new information we receive to the existing information in our memory [58].

Sensory memory appears to have a significant and leading role in the unplanned behaviour of using library resources and services. It is next transferred to STM, the stage associated with making decisions and using resources. Then after the use of a particular resource or service, the stored information is transferred to LTM.

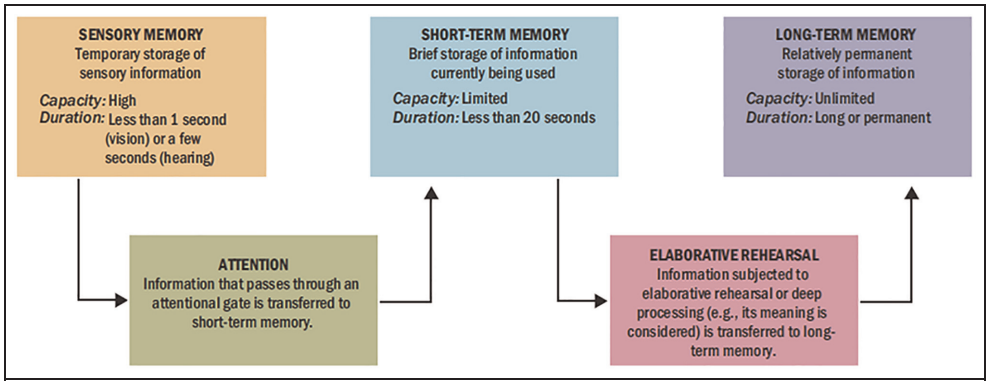


**Figure 6.** Types of memory [58].

In addition, there is evidence for the superiority of visual memory (as part of sensory memory) over (spoken or written) verbal memory. The visual aspects of an advertisement are more probably to attract consumers' attention. In fact, eye-movement studies show that about 90% of viewers notice the dominant picture of an advertisement before its content. Although visual advertisements may enhance recall, they do not necessarily improve comprehension [58].

In sum, behaviours that occur randomly, impulsively and without a prior plan by individuals are concentrated in the domain of unplanned behaviour. As mentioned, most of the issues in the area of unplanned behaviour related to business management and consumer behaviour are referred to as impulse buying. In the case of unplanned behaviour, exposure to information makes the first step in its processing. Individuals are first exposed to information, receive it through their senses and then notice and interpret it, resulting in the process of perception. The client's perception, mental involvement and memory will lead to information processing in unplanned behaviour domain.

According to what was mentioned, the conducted research and the proposed information-seeking behaviour models relied on one's prior decision and intention to obtain information consciously relative to his or her information needs. One of the most important ways to obtain information is to receive information unconsciously and immediately without prior decision-making which has not received attention in previous information-seeking behaviour research. This study considers the unplanned aspect of information-seeking behaviour in using library resources and services. This neglected aspect of library users' information-seeking behaviour can be henceforth the focus of future research in the field of information-seeking behaviour.

This study attempts to make a connection between planned and unplanned behaviours. Therefore, the unplanned and immediate aspects of behaviour should be explicitly considered in the field of information-seeking so that information resources and services will be optimally used as the ultimate goal of libraries.

## 4. Proposed model of information-seeking behaviour based on both planned and unplanned behaviours

The proposed model of users' information-seeking behaviour in the library environment is formed by combining the existing models of planned information behaviour considering identified factors affecting users' unplanned behaviour (Figure 7). In this model, the relationship between each influential factor in the occurrence of unplanned behaviour and determinants of planned information-seeking behaviour was shown for the visitors using library resources and services.

The proposed model (Figure 7) for information-seeking behaviour of clients has two main parts. The first part consists of planned behaviour resulting from a problem or a certain information need according to which the user seeks to find information in a planned manner. Certain information need means the need for knowingly making a referral to an information centre by the user either virtually (online) or in person. In the case of planned behaviour, the user decides to select the information he or she is looking for after being exposed to information, under the influence of some factors by opportunistically or accidentally.

The second part deals with unplanned behaviour shaped by a hidden or uncertain information need. Hidden or uncertain information need means the need for obtaining information that may be useful to the user who has made a referral to an information centre or database with no prior plan or specific purpose. Therefore, users refer to the information centre or database and encounter useful information in an unplanned way. In this case, the user's hidden and uncertain information need is felt in an unplanned and instant manner under the influence of various factors (which are visible in Figure 7).

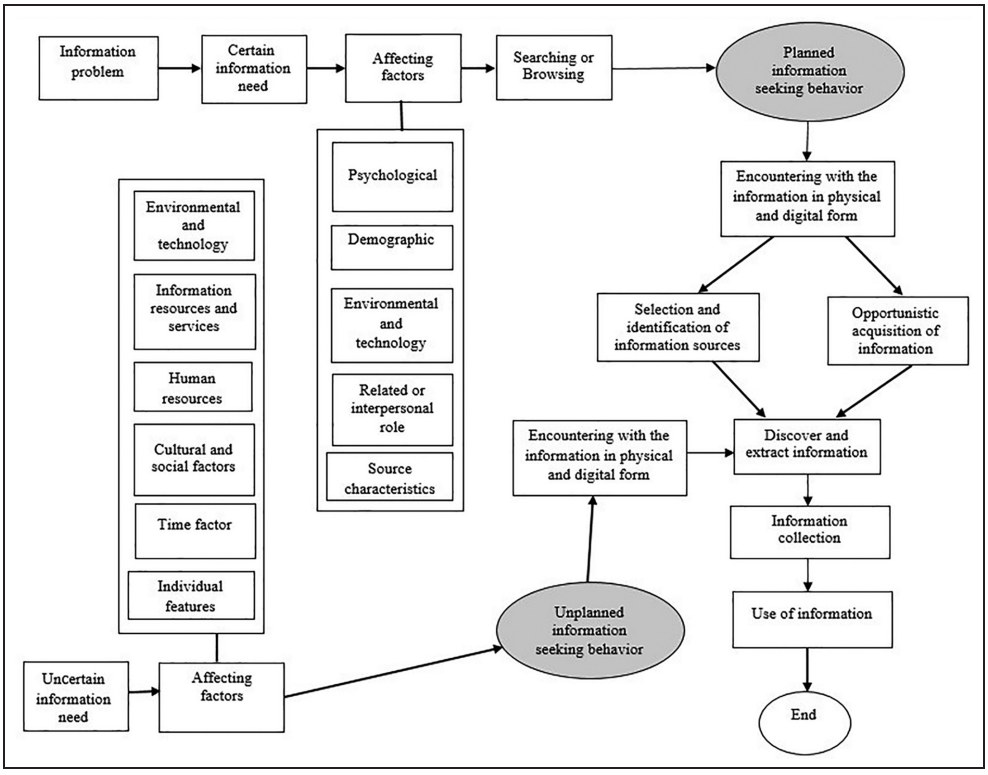


**Figure 7.** The proposed model of information-seeking behaviour.

These factors make the user encounter information that was not of interest from the beginning, leading to the discovery and extraction of interesting information. Consequently, both types of behaviour can result in the discovery, extraction, collection and use of information.

Therefore, according to the model presented in Figure 7, library user encounters with information can be described regarding both planned and unplanned aspects of their behaviour. In previous research, the chance encounter with information [23–25,38,39], accidental access to information [22,30,34,35], opportunistic acquisition of information [26–29] and coming across information serendipitously [32] have been discussed in terms of planned behaviour which the purpose of encountering with the information is information that is already in the user's mind and has taken steps to achieve that information. In this study, the unplanned behaviour of users and its determining factors have also been considered additional to their planned behaviour in acquiring and encountering information.

## 5. Conclusion

Issues related to information-seeking behaviour have been noticed by many studies in the field of library and information science; sometimes, conflicting views construct this area of study. Since the issue of the unplanned behaviour of users has not been directly addressed in recent studies inspired by marketing areas, the current research aims to present a model of information-seeking behaviour regarding the unplanned rather than the planned behaviour of users to increase their use of library resources and services.

In formulating the proposed model for information-seeking behaviour (Figure 7), Harati et al.'s [40] axial coding model of unplanned behaviour was combined with the known information-seeking behaviour models. This proposed model has attempted to reflect the factors which influence both planned and unplanned behaviours. Drawing on the proposed model in this research, researchers in the field of library and information science can do research in the area of information-seeking behaviour. Furthermore, libraries can apply this model for presenting and disseminating their resources and services in physical and digital form. Libraries can make the optimal use of resources and services and take an influential role in motivating the unplanned behaviour of users with the aid of factors affecting this aspect of their behaviour, such as environmental and technological changes (drawing attention to the beauty and making use of

technology in the environment), informational resources and services (making resources available and services known), human resources (employing a cadre of highly sociable librarians) and the time factor (increasing library activity time).

## 6. Research achievement

There are a considerable number of resources or services in libraries or databases that are organised with the ultimate goal of being used by library visitors. Hence, librarians should be aware of the factors that influence the use of these information resources and services. Many of their resources and services will be useless with no justification for the cost spent on their preparation and collection, providing that users use the information resources or library services only when they need.

Besides the planned behaviour of users affected by certain information needs, their unplanned behaviour should be considered. They can be encouraged to use information resources and library services as their dominant and planned behaviour in the long run. Regarding the proposed model of information-seeking behaviour (Figure 7) and the determinants of unplanned behaviour, the results of this study will be helpful for librarians to make their resources and services accessible to library or database visitors. Thus, libraries can adopt effective strategies to increase the efficient use of their services or resources and present them in a cost-benefit way.

Furthermore, the outstanding achievement of this study is that it develops a model of information-seeking behaviour in which both planned and unplanned aspects of visitors' behaviour have been considered in using information resources and library services. Whereas previous models of information-seeking behaviour have emphasised the planned behaviour based on a predetermined information need, this study introduces a different model by the emphasis given to the unplanned behaviour of library users.

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