

Modeling Task Environment as a Second-Order Construct in Information Seeking: A Proposed Conceptual Framework

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Abstract— Information seeking has been identified as a major task performed by professionals as part of their work roles. Since they rely heavily on information for their task performance, it is expected of them to seek and use timely and accurate information in order to accomplish their tasks and enhance their productivity. However, a number of factors interact with the information seeking process and this consequently determines the outcome (success or otherwise) of the information seeking. This paper presents a conceptual framework for the environmental factors that influence information seeking of professionals. Five dimensions of environmental factors (Social, Technological, Situational, Physical, and organizational) were identified from the literature. These are referred to as “task environment” because they influence information seeking in the work environment or for task performance. Consequently, a second-order model of “task environment” was proposed as the conceptual framework for a holistic study of environmental factors that may influence information seeking in the work environment.

Keywords— Environmental factors, Information seeking, Physical factors, Second-order model, Situational factors, Social factors, Task environment, Technological factors, Organizational factors

1 INTRODUCTION

The importance of information seeking for task performance cannot be overemphasised. Researchers have made efforts to understand the information seeking behaviour of workers or professionals, and it has been established that their information seeking emanates from their work roles or specific tasks [18], [5], [3]. Given that tasks are “separable parts of person’s duties to his employer” [4], certain tasks may require specific information (types) for their performance [2].

For professionals, information seeking is part of their daily tasks, owing to the fact that they need to keep abreast of information to be able to perform their duties. In an effort to understand an individual’s information seeking behaviour, it is highly imperative that the environment in which the information seeking takes place is taken into consideration, as this will have impact on the outcome of the information seeking process.

Bystrom and Hansen (2005) [4] posit that tasks are better understood if the environment (or contextual attributes) in which they are part is considered, since tasks do not exist in isolation. Apart from the context of information seeking, understanding the environmental factors is also vital to the success of information seeking research. Environmental factors are the circumstances

which surround and consequently influence the information seeking process and/or outcome. The importance of the environment and how it influences information seeking was also emphasised by Cool and Spink (2002) [6]. In the conceptual framework proposed in this study, environmental factors are referred to as “Task Environment” since these are the factors which specifically relate to information seeking behaviour of task performers (professionals) in the work environment. The subsequent sections present a review of literature, theoretical framework and the proposed conceptual framework for task environment in the information seeking behaviour of professionals.

2 LITERATURE REVIEW

This section discusses the five dimensions of task environment (environmental factors) identified from the review of relevant literature.

2.1 Social Environment

Social environment refers to the relationship among individuals, which eventually affects their information seeking. It centres on the interaction among human

beings (interpersonal relationships), especially in the work environment because it goes a long way in determining their choice of information seeking. Cordial relationship in a work environment could be a motivating factor for information seeking [31]. Social environment influences workers' willingness to maintain cordial relationship, especially when they feel such relationship is relevant for their task performance [31]. It incorporates cooperation and collaboration of peers or co-workers as well as superiors in the work environment.

From the relational communications viewpoint, information seeking in the work environment is not only for task accomplishment but also for maintaining social relationship. Hence, existing research on task related description of information seeking can be complemented from the social perspective because reasons for source preference in information seeking are better understood if the social context or environment of the seeker is considered. For instance, cooperation and support of colleagues may have positive effect on a worker's information seeking behaviour. As suggested by Evans, Kairan, and Pirolli (2010) [9], friends serve as essential resources in problem-solving, apart from the fact that they provide useful information. In a study carried out among academics in the United States, China, and Greece by Wang, et al. (2007) [29], it was discovered that academics do contact their colleagues for information as they are considered as important information sources and subject experts. Evans, et al (2010) [9] in their study found that social interaction enhanced the information search of participants, especially for the complex search tasks. Jaafar (2009) [13] also discovered that most lawyers prefer to discuss with their colleagues and experts when seeking information. The same trend was observed in a study by Kanunakaran and Reddy (2012) [17], where majority of the respondents preferred to interact with colleagues during their task performance. Xu, et al's (2011) [31] study also reveals that a strong significant relationship exists between social/relational motivation and task information seeking. More so, individuals prefer to get information by interacting with people from their social caucus because they believe that these set of people have the desired expertise [32]. Consequently, it may be said that the extent to which social interaction is important in aiding information seeking in the work environment is unquestionable.

2.2 Technological Environment

Technology can be referred to as a group of IT infrastructures, software, and hardware. The technological environment refers to factors relating to technology which impact information seeking for task performance. The development of Information and Communication Technology has brought about a tremendous change in the way information is being sought and accessed by individuals. The presence of technology in the work environment facilitates task performance, while its absence may be a barrier to effective task accomplishment. Technology improves convenience in everyday life of individuals, particularly, the professionals. Availability of technological infrastructures enables access to information, especially those in the electronic format. Hence, the use of computers and network facilities influences the way people go about their daily activities [24]. Previous studies have shown that lack of technological facilities bring about user dissatisfaction [11]. Dhanavandan and Tamizhchelvan's (2012) [7] study also reveals that Engineering professionals claimed that lack of digital information resources brought about the lack of access to information. Expectedly, research has shown that the availability of technological infrastructures no doubt enhance information seeking. In a study conducted by Manikandan, Esmail, and Nagarajan (2013) [20] among students, researchers and academic staff of biological department of selected Universities in Tamil, majority of the respondents acknowledged that the presence of technological infrastructures such as computers, internet facilities, and electronic resources was very useful for their information seeking. It was also discovered that technological environment influenced the information behaviour of refugees in Nigeria, besides the economical and political environment [23]. Thus, the accomplishment of information related tasks in the work environment where access to information is enabled through the provision of technological facilities makes information seeking easier and enhances task accomplishment.

2.3 Physical Environment

Physical environment relates to the physical distance of the library to the work/task environment. It refers to the proximity of the library or information centre to a worker's office or where a particular task is to be performed. As opined by Meyers, Nathan, and Saxton (2007) [21], physical accessibility is very vital for effective information seeking. Even when information is available in the online environment, it is appreciable to note that only a fraction of the information sources are available [14] and accessible, especially in the developing countries. For information-intensive professions, the proximity of the library or information repository cannot be overemphasised. Even when a

library (or collections of information resources) is available within the organization, the convenience of its proximity to the task performer matters a lot. Looking for information from a far distance discourages the task performer, thereby affecting the task outcome or the productivity of such individual. As found by Tahir, Mahmood, and Shafique (2008) [27], a major problem to information seeking for task performance (teaching and research) as noted by the university lecturers in Pakistan was the location of information sources in a far distance. As such, proximity of information centres or libraries (physical environment) is very vital to the success of information seeking.

2.4 Organizational Environment

Organizational environment relates to specific organizational practices such as incentives, training facilities, and provision of communication facilities within the organization. Research has shown that organizational support is very vital for career development [26] and employee performance [22]. The development of human resources is now the focus of organizations as this will go a long way in developing their skills and knowledge. Organizational commitment and support for staff is very vital for their information seeking for task performance.

On the contrary, lack of such undoubtedly affects their information seeking and task performance. Previous studies have shown that support for skill development such as conferences, seminars, workshops no doubt enhances information behaviour of workers. As found by Kamba (2010) [15], teachers in rural areas of Nigeria received support from their schools, which had positive effects on their information seeking behaviour. Organizational culture and career development were also found to have positive impact on career development [22]. Karunakaran and Reddy (2012) [17] also discovered that lack of motivation to look for information (such as sponsoring seminars) was among the factors that affects workers' information seeking in organizations. It is highly imperative that organizations support their staff in terms of their professional development as this will go a long way in aiding their task performance.

2.5 Situational Environment

As found with many studies, situational factor majorly refers to the time available for information seeking and task performance. If a task performer is not given

adequate time to accomplish the task, it may affect the information seeking of such individual and eventually the task outcome (Adewale, 2016). Situational factors due to lack of time was a major factor complained by public administrators during task performance (Bystrom and Jarvelin, 1995) [5]. Preddie (2007) [25] also discovered that lack of time to look for information was among the major challenges highlighted by majority of the primary care practitioners.

3 THEORETICAL FRAMEWORK

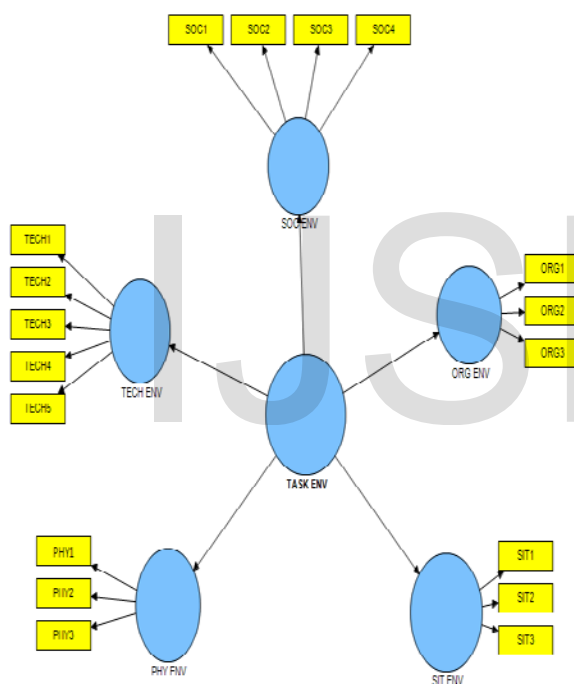
The theoretical framework of this study derives from the Leckie, et al's (1996) [18] model of information seeking behaviour of professionals and the Bystrom and Jarvelin's (1995) [5] model. The authors posit that the tasks performed by professionals emanate from their work roles, and this subsequently influences their information seeking. Although the environment in which information seeking takes place was not considered in the Leckie, et al's (1996) [18] model, the model is relevant to the study since the tasks performed by professionals often emanate from their work roles, and this is the basis of the (Leckie, et al., 1996) [18] model. The authors aimed at developing a model that is generalisable among professionals (engineers, healthcare professionals, and lawyers) using empirical studies on information behaviour of the professionals and it was established that their various tasks emanate from their work roles and this subsequently determine their information seeking.

The Bystrom and Jarvelin's (1995) [5] model is a very unique model of task-based information seeking because of its emphasis on the complexity dimension of task. However, unlike the Leckie, et al's model, Bystrom and Jarvelin (1995) [5] acknowledged that other factors (situational, organizational, personal factors) interact with the information seeking process. These factors are of relevance to the development of the conceptual framework proposed in this study.

4 PROPOSED CONCEPTUAL FRAMEWORK

Having identified five dimensions of task environment from the literature, it can be deduced that the construct is multi-dimensional in nature. Hence, task environment is conceptualised as a second-order factor/construct in order to carefully understand the construct in the information seeking context. A multidimensional or hierarchical construct is such that has more than one dimension; thus, a higher order

latent construct is created “by specifying a latent variable that represents all the manifest variables of the underlying lower-order latent variables [30]. Rather than having single underlying dimension as is the case of a unidimensional construct, the hierarchical model has dimensions (second order latent constructs) which interacts directly with the manifest variables. An argument in support for the use of higher order constructs is the fact that it reduces the complexity of models and allows for more theoretical parsimony [8], [30]. The proposed conceptual framework for task environment is presented in the figure below.



Proposed Model for Task Environment

From the model above, the five dimensions of task environment are the first-order latent constructs which are directly related to the manifest variables (in rectangles). It should be noted that the manifest variables may vary (more or less) in number from the image above. Meanwhile, task environment is the second-order construct which relates to the first order (the five dimensions) latent constructs. The significance of having this kind of model owes to the fact that hierarchical construct models enable matching the

levels of abstraction for both independent and explained variables.

5 CONCLUSION

This paper has reviewed a number of literatures on the various dimensions of environmental factors that influence information seeking of professionals. Subsequently, a second-order construct model was proposed. Task environment being a second order construct has five dimensions (Technological, Social, Organizational, Physical, and Situational), while these dimensions are related to their respective manifest variables to become the first order constructs. However, empirical studies based on this proposed model are required in order to further explore the manifest variables which relate to each dimension, and to validate the model in terms of the goodness of fit indices.

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