A Conceptual Framework of Information Learning and Flow in Relation to Websites' Information Architecture

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ABSTRACT

Culture, information learning of users and knowledge domain shapes the experience of flow while interacting with websites' information architecture. This paper presents a conceptual framework of information learning and flow through extending person-artefact-task model. The paper attempts to relate the experience of flow when interacting with websites to information learning and website information architecture within the domain of HCI and usability.

Author Keywords

Information learning; Flow; Knowledge Acquisition; Information architecture; Human-Computer Interaction.

ACM Classification Keywords

H.5.m. Information interfaces and presentation
I.2.6. Learning

INTRODUCTION

With the adoption of technology and accessibility of a wide variety of websites worldwide, the users' conception of the website information architecture has become an important aspect of website structures. The aim of the paper is to provide an understanding that in addition to cultural background, how users' perception for information architecture is inspired by learning and usage of artefacts. Different cultures may have different levels of learning and usage of the artefacts which can impacts on the usability of the website in many ways. In addition to understanding user's cultural background, understanding the users flow can improve the usability of the websites. It is often a challenge for users to retrieve the information from the large complex websites such as e-commerce websites. The challenge may, however, not be the same in different countries and people with different information learning [1]. Yet the extraction of users' experience of flow when interacting with is a tough and challenging job. The flow and user's information learning can be understood through

different factors such as users' language priority for websites, language fluency. In addition to language priority and fluency, it can be understood through users' priority for information presentation on websites and looking into the reasoning on why users perceive information into a particular order.

The experience of flow when interacting with artefacts highlights a number of abstract ideas (e.g., structure of the information in physical location). The abstract and subtle experience of things and culture shapes users thinking. The frequent visit of a grocery store can shape the people's conception of grouping in a grocery store. This experience may influence their thinking when search for grocery items on a website. The user's frequent use of websites and access to internet can also shape the users flow. An expert user who spends more time on the internet may tend to make more structured categories for website information structure in comparison to a novice user. On the other hand, these experiences are not easy to analyze. When the users search for items on a website, it can be influenced through the arrangement of items in the grocery store. From website structures perspective, it could be influenced though frequent visits of a grocery website and getting inspiration from arrangements of item on grocery store's website. Information finding skills, internet use and knowledge domain may shape a user's experience of flow when interacting with website information architecture. Information findability on a website is a kind of problem solving. It is governed by the way in which the problem solving space is structured by the users. One user may represent a problem mathematically, another visually, and still another metaphorically [2]. Understanding the users' perception of a website structure is becoming important because people are adopting e-commerce and websites to find products and services. This is associated with information learning and when interacting with websites information architectures. For example, a number of issue may arise when a novice user uses a website to search for, and buy products [3]. The lack of interaction of novice user with the website information architecture may result in finding it challenging to search for items on the website. A user may feel more challenged or captivated by searching information on a website that provides information in a single language. The person may spend more time to search

for items on website structure which the user has not experienced before.

INFORMATION ARCHITECTURE AND CULTURE

The history of information architecture has evolved over a period of time. The term 'information architecture' (IA) was first used in 1976 by Richard Saul Wurman [4, 5]. The information architecture institute (IA Institute) has defined the practice of information architecture as: 1) The structural design of shared information environment; 2) The art and science of organizing and labeling web sites, intranets, online communities and software to support usability and findability [4, 6]. IA is an organization of information in such a way which can be manipulated efficiently by the users. On an abstract level, information architecture is a structure or map of information which allows others to find their personal paths to knowledge [7, 8]. Wurman describes Information architecture as a creation of structural and orderly principles to make something work [5]. Wurman defines IA generically which can be applied in different fields and genre of literatures. In this paper, we understand information architecture of websites as the placement of information on website at different levels.

National cultural differences are investigated by a number of researchers to understand to what level the users background effects on the websites [9, 10]. Kralisch and Yeo [11] investigated the impact of culture, language and medical knowledge on users' information categorization. The study suggests that whereas language predominantly affects the users' beliefs about ease of use and usefulness, culture broadly seen also influences the users' preferences in information categorization, their attitudes, and their behavior. The localization of contents not only covers the contents but it is a process of developing, tailoring and/or enhancing the capability of hardware and software to input process and output information in the language, norms and metaphors used by the community [12].

FLOW IN INFORMATION SYSTEMS

Flow is the holistic sensation which people feel when they act with a total involvement in an activity. It can be reflected through the users' exploration of searching information on a website or exploratory behavior on the internet. Flow theory has been applied to computer-mediated environments to study positive user experiences such as increased exploratory behavior, communication, learning, positive affect, and computer use [13]. The flow provides users with a view of the world within an activity to perform tasks in a certain way that they learn over a period of time through the flow. According to Csikszentmihalyi [14], a person experiencing flow, or achieving an optimal experience, will have clear goals, exercise control, lose their self-consciousness, and experience a distortion of time. In the e-commerce websites, the activities are broken into the tasks and artifacts, where tasks are the goals of activity and artifacts are the tools to complete the task. When a novice users search for an information such as a home appliance. The novice user might find it difficult to search for the information on the home appliances website and feels in the flow while using the telephone to call the company to know more information about the appliance, or newspaper advertisement that has the information of the appliance. It appears that the person do not have any problem in using the tools such as newspaper or telephone because the person has used these tools previously and feels in the flow to use it again. This assumption may not hold true when using websites to look for information. Depending on the person's experience with the websites and conception about the correct hierarchy of information architecture of products, it may differ for skillful users and novice users. The skillful users who spend more time on the internet and websites may find more flow while exploring and searching the information of an object on the websites and conversely may not find the flow when they use other means and tools to find information of an object. The person may tend to conceptualize the world in such a way which makes more sense to the previous experiences in a flow. In relation to a website, the expert users conceptualize the information and flow of information in connection to the previous website experience and the expectations are relevant to that experience. The users group the information in such a way which the users has experienced before, and the information clustering of a particular number of items is affected by the prior experience of interacting with the websites. Csikszentmihalyi [14] argues when experiencing flow 'self' becomes complex and person learns to become more than what (s)he was before. Flow model in information systems, on the contrary, is linked to activities where individuals have developed their skills efficiently enough to match challenges they are facing [15].

INFORMATION LEARNING, FLOW AND INFORMATION ARCHITECTURE

In the psychology, education and knowledge management literature, learning is commonly defined as a process which is influenced through the cognitive, environmental and contextual settings and it influences on the skills, values and word views of the users [16]. Information learning in this paper is defined as the skills and knowledge of information use that a user acquires over a period of time through studies, experiences, language, internet use and other learning. Some of these learning are explicit while other is implicit. These skills and knowledge shapes the users view of the world and help users to think about the structure of the websites in a certain way. Information finding on the websites requires some understanding and previous knowledge about the structure of the website to

find the information effectively. It also takes learning and the experience of flow among the users into consideration. The learning and knowledge acquisition impacts on users' concepts and thus impact on information findability of the users [17]. Del Galdo, E., & Nielsen [18] expresses it though cultural learning differences in software user training.
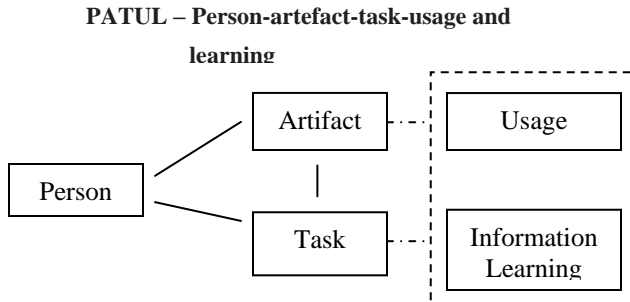
PATUL – Person-artefact-task-usage and learning

Figure 1. A person – Artefact – Task – Usage and Learning (PATUL)

The person- artefact- task-usage and learning (PATUL) (fig.1) is inspired from person-artefact task model (PAT). It is an intention to conceptualize about the person working on a computer-related activity and what factors can be influential to the flow experience of the person. The person may inspired through the previous usage of the artefact and performance of tasks [13]. A person may feel challenged and captivated by searching for information on the website that have not been experienced before. It can also be the case in the use of website languages in local language. There users find it easy to search for information on English language website because they have experienced the flow before. A native danish speaking user might find it easy to search for information in danish because he/she has experienced the danish website before. The learning and flow is anticipated for a native language speaker. The artefact plays an important role in the searching experience because artefact may influence the likelihood of an optimal experience. The task is the activity that a user performs on a website to look for information. The task may involve searching for an electrical trimmer on appliance's website or finding the contact information of the helpline for an organization on their website.

The users acquire knowledge with repeated attempts to use a system that portrays the properties similar to the one they are using. Parkinson et. al. [20] found that the time to search a menu frame and enter the response did improve with practice and learning from the practice. The practices related to the learning during the use of similar systems in their previous experience also provide users with the flow that helps in the outcome of an activity. In connection to the website use, the users' previous use of the websites and

system is connected to their model of the website and its structure. The users' understanding about the structure of the websites can be understood by providing them with the website contents and ask them to sort the contents in a way which makes sense to them. By using the flow theory's approach, we can say that the users' learning and learning of the websites makes their conscious loose and improve their task time on a website to find items and information. We can collect the information related to their experience and learning though the questionnaire about the language and use of technology and websites.

CONCLUSION

This paper attempts to make a conceptual relationship between the information learning and flow by relating it to Person-artefact-task model. Regarding the learning and language, in spite of better fluency in the local language, users may prefer to use the websites in english because of their previous learning and usage of the website in the english language. It may also imply that the language fluency may not shape the choice of language of users for website. The paper provided an overview of how the information learning and usage of websites can possibly be related to each other to impact on the users flow for task performance or conceptualising information on the website. Most of the flow related studies in Information Systems are qualitative and measure the experience of the users using questionnaire. Measuring the flow itself can be challenging as it can be inspired from number of unrelated factors which users may not be able to explain or explicitly state.

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