

EMPLOYEE SATISFACTION FOR E-HRM

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ABSTRACT

Not much of studies have taken place in study of automation of Human Resource Management function using a business-to-employee (b2e) portal that enable Electronic Human Resource Management (eHRM) implementation potential. In this paper, we propose a conceptual model for eHRM portal user satisfaction for employees that was derived from an extensive literature review of existing user satisfaction instruments and the eHRM portal. Nine dimensions of the eHRM portal user satisfaction were identified: Information Content, Ease of Use, Convenience of Access, Timeliness, Efficiency, Security, Confidentiality, Communication, and Layout. This model has been checked using users of a large organisation currently implementing the eHRM concepts to automate a few Human Resource Management activities and is found to be a good model to predict the user satisfaction levels.

Keywords: Conceptual model, user satisfaction, eHRM portals, HR portals

INTRODUCTION

The Internet has permeated into all business activities within organisations and has immensely changed the various business process including the relationships and transactions between the organisation (especially the Human Resource function) and its employees. The web-based Intranet is a tool used by many organisations for building a more committed work force. Organisations lose a lot of productive employee time (Turban et. all. 2002) while searching for HR information. One way to overcome this problem is through the implementation of the Electronic Human Resource Management (eHRM) using the business to employee (b2e) portal technology.

REVIEW OF LITERATURE

The HR portals has received fairly extensive attention in the business literature (for example, BEA white paper, 2002; Cruz, 2000; Deimler & Hansen, 2001; Geib, 2003; Oracle, 2000). Several organisations have invested a large amount of resources to develop and introduce such portal to their employees (Bannan, 2002). However, measuring the effectiveness of b2e portal in delivering their intended benefits is found wanting. Among the myriad forms of assessment of IS effectiveness, end user satisfaction is one of the most widely used measures (DeLone & McLean, 1992).

Our review of the literature shows that there is no study specifically aiming to examine user satisfaction with the b2e portal. The existing user satisfaction instruments in the IS field are considered inappropriate for b2e portals (Tojib, 2003).

The purpose of this paper is to address this gap in the literature and explore the development of a conceptual model of user satisfaction with the b2e portal.

User Satisfaction with eHRM B2E Portal

Definition of user satisfaction

The definition of user satisfaction has evolved with changes in the Information Science (IS) environment (Simmers and Anandarajan, 2001). User satisfaction has been defined as 'an affective attitude towards a specific computer application by someone who interacts with the application directly' (Doll and Torkzadeh, 1988: 261).

The b2e portal is usually provided in a web-based environment. They interact with the portal directly. In this study, we adapt the Doll and Torkzadeh (1988) definition and define user satisfaction with b2e portal as an 'affective attitude towards the b2e portal by employee who interacts with the portal directly'.

User Satisfaction Studies

As user satisfaction has been top of the IS research agenda for almost twenty years (Haga & Zviram, 1994), it is one of the most widely researched topics in the IS field (Harrison & Rainer, 1996). Therefore, it is not surprising that, since the 1980s, considerable conceptual and empirical studies have been devoted to establish a standard user satisfaction instrument.

User satisfaction with overall IS systems

Bailey and Pearson (1983) first attempted to develop a semantic differential instrument to measure user satisfaction with general IS in TDP environment. Thirty nine items contributing to user satisfaction were identified based on a review of twenty two studies of the computer/user interface (Bailey & Pearson, 1983). In follow-up research, Ives, Olson, and Baroudi (1983) tested the Bailey and Pearson (1983) instrument for its reliability and validity. Their findings suggested retaining thirty three items for evaluating user information satisfaction (see appendix 1). Furthermore, they attempted to produce a shorter version of this instrument through the application of factor analysis.

User satisfaction with specific IT application

The emergence of low cost desktop Personal Computers (PCs), the decentralisation of IT development policy, and the availability of user-friendly software applications in the late 1980s and early 1990s have led to the proliferation of the EUC environment (Powell & Moore, 2002 ; Downey, 2004). The available user satisfaction instruments are inappropriate for the EUC environment in which end users develop and/or interact directly with specific applications (Doll and Torkzadeh, 1988). Doll and Torkzadeh (1988) developed and validated the first EUC satisfaction instrument which focused on measuring user satisfaction with a certain type of IT application. This instrument is based on a factor model consisting of 5 first order factors (that is, content, accuracy, format, ease of use, and timeliness) measured by 12 items. Following the publication of Doll and Torkzadeh (1988), a large number of researchers adapted or adopted their measuring user satisfaction with certain type of IT application (for example, Glorfeld & Cronan, 1992; Seddon & Yip, 1992; Palvia, 1996; McHaney & Cronan, 1998; Downing, 1999; McHaney, Hightower, & Pearson, 2002; Zviran, Pliskin, & Levin, 2005). Furthermore, those who developed new instruments had also considered Bailey and Pearson (1983), Ives, Olson, & Baroudi (1983) works as their

reference instruments (for instance, Barki & Huff, 1985; Wan & Wah, 1990; Igbaria & Nachman, 1990; Seddon & Yip, 1992; Lawrence & Low, 1993).

User satisfaction with web-based IS

During the 1990s, there were significant changes in IT, especially with the rapid growth of the Internet. In this period, an increasing number of organisations exploited and created business opportunities on the Internet (Liao & Cheung, 2001). Furthermore, the widespread use of internet technology enabled the development of web-based information systems. In the field of user satisfaction, some researchers attempted to develop new instruments or used or adapted available instruments to measure user satisfaction with web-based applications.

Conceptual Model

Domain Identification

Currently we do not have any established theoretical framework for measuring user satisfaction with the b2e portal. A theoretically grounded model of user satisfaction with the b2e portal necessitates a careful review of the existing general user satisfaction instruments and extant literature. The aim of this review is to identify the domains of user satisfaction with the b2e portal.

A study on the instruments identified a range of dimensions contributing to user satisfaction with general IS, certain type of IT applications as well as end user perception of quality of websites and web portals. These dimensions were then grouped into three main categories: information quality, system quality, and system design quality. Information quality and system quality are two major perspectives that have been widely examined by a large number of IS researchers when developing research model of end user satisfaction (eg. Bailey & Pearson, 1983; Doll & Torkzadeh, 1988; Yang, et.al, 2005)

Observation of the wide range of dimensions reveal that naming dimensions contributing to user satisfaction might be quite challenging. Some researchers use different dimension names but they essentially have identical meanings. For instance, factor 'Ease of use' (Doll & Torkzadeh, 1988; Cho & Park, 2001; Muylle, Moenaert, & Despontin, 2004; Yoo & Donthu, 2001) is similar in meaning to factor 'Learner interface' (Wang, 2003) as well as factor 'Usability' (Chin, Diehl, & Norman, 1988; Yang, et.al, 2005). Thus, the next step was to group dimensions that are different in name but similar in meanings (shown in Appendix) and created a common name for each grouped dimension.

It is good if the dimensions were used in most measures of user satisfaction with various type of IS and IT applications. We believe that dimensions which have conceptual and empirical relevance to most general user satisfaction scales can be appropriately included in the b2e portal user satisfaction domain. Second, the dimensions must be theoretically associated with the b2e portal environment. These major characteristics were considered when investigating dimensions of the b2e portal user satisfaction.

Careful examination of the above criteria and characteristics resulted in the identification of nine dimensions of the b2e portal user satisfaction: (Information) Content, Ease of Use, Convenience of Access, Timeliness (currency of information), Efficiency, Security, Confidentiality, Communication, and Layout. Each of these nine dimensions is discussed in the following paragraphs.

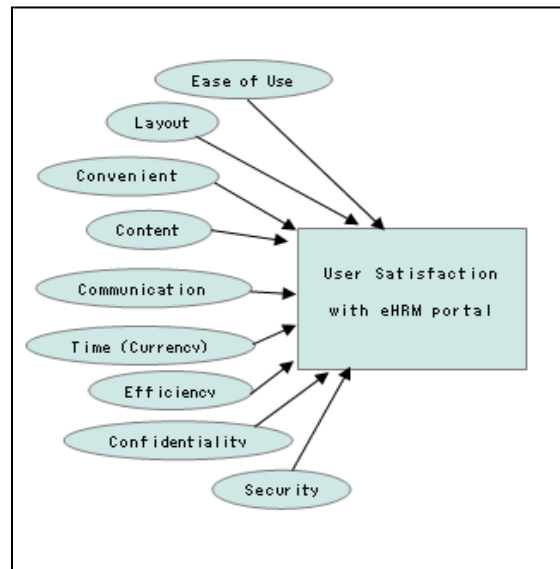


Figure 1. Conceptual Model of User Satisfaction with eHRM Portal

B2E Portal User Satisfaction Dimensions

Content (Information content): This dimension was derived from Information Content dimension which has been typically measured in previous studies in terms of its accuracy, relevancy, currency, reliability (eg. Doll & Torkzadeh, 1988; Bailey & Pearson, 1983; Ong and Lai, 2004; Yang et al., 2005; Chen et al., 2000; Muylle, Moenaert, & Despontin, 2004). In this study, Information Content is referred to as the relevancy, accuracy, currency, and reliability of information presented to each employee based on his/her role in organisation.

Convenience of access: Employees must be able to access the portals regardless of time and location as long as Internet connection is available (Melville, 2004). The b2e portal clearly provides convenience for employees, particularly those who spend more time out of office during working hours or those who work remotely from home. They could remain updated with the organisational news and at the same time perform their work-related and personal tasks by accessing the portal. Thus, in this study, Convenience of Access is referred to as the ability of the portal to be accessed any time and anywhere through intranet, internet, or even mobile devices.

Ease of use: The ease of use dimension is an important dimension for portal users, given that employees are traditionally not required to use b2e portal in their day to day activities. This view is also supported by Dias (2001) who stated that portal users should easily locate and access the right information, with minimum training. In this study, Ease of Use is referred to as the extent to which the portal is perceived to be user friendly. This includes ease of navigation, training issue, feels of being in control, and learnability.

Timeliness (Currency of information): Portal users require information on-demand fairly quickly or the information becomes obsolete (Rushinek and Rushinek, 1985). As lengthy response time may cause lower user satisfaction and poor productivity (Hoxmeier and DiCesare, 2000), it is very important to ensure that the portal users are satisfied with the portal's response time. Thus, the existence of timeliness will increase satisfaction and the absent of timeliness will decrease satisfaction with the b2e portal. In this study, Timeliness is

referred to as the ability of the portal to deliver requested information in a reasonable response time before it becomes obsolete.

Efficiency: End user satisfaction with the system is likely to increase if they believe that using the system will increase their performance and productivity (Mawhinney and Lederer, 1990; Vlahos and Ferratt, 1995). In other words, end users believe that if the system could assist them in improving their performance and productivity at work, the system is useful to them. Perceived usefulness has the strongest impact on end user satisfaction (Calisir and Calisir, 2004). In this study, Efficiency is referred to as the ability of the portal to assist employees in performing their tasks better and faster, streamlining work processes, and, hence, improving their productivity.

Confidentiality: In the case of the eHRM b2e portal, many of the Employee Self Service (ESS) applications enable employees to submit or retrieve their personal information electronically. Hence, privacy / confidentiality issues have been a serious concern in the online b2e portal environment (Vernon, 2002; Yang et al., 2005). The ability of the portal to maintain the confidentiality of employees' personal information is likely to be associated with user satisfaction. The dimension Confidentiality is defined as the ability of the portal to provide a sense of assurance that any personal information retrieved or submitted from and through the portal will not be misused by authorised people.

Security: The Security dimension in this study was intended to tap a more encompassing aspect, namely the ability of the portal to provide a secure access to all applications and facilities provided. Hence, this dimension includes issues relating to the security breach of the portal, such as data theft, which will increase in proportion to the number of organisations storing their personnel files electronically (MHRIS, 2002).

Communication: Ong & Lai (2004), Wang (2003), and Yang et al. (2005) found that the ability of the system to enable system users to interact with others influence user satisfaction. In the b2e portal context, the portal acts as a medium of communication between organisation and their employees as well as employees with other colleagues (London Financial Times, 2002). Thus, the ability of the portal to act as a communication medium among employees may be an important indicator for user satisfaction with the b2e portal. In this study, Communication is referred to as the extent to which the portal could mediate interaction (i.e., information sharing and collaboration) between employees and the organisations as well as employees and their colleagues.

Layout: This dimension was derived from Chin, Diehl, and Norman (1988), Cho and Park (2001), Huang et al. (2004), Loiacono, Watson, & Goodhue (2002). They have confirmed the importance of system design quality in measuring user satisfaction with IT applications. Given the role a portal plays as the interface between the employees and the organization, effective portal design must be seen as a prerequisite for successfully implementing b2e initiative. This view is supported by Muylle, Moenaert, and Despontin (2004) who stated that effective website design is needed to ensure the success of instituting an e-commerce initiative. Thus, an attractive and aesthetic portal design may be an indicator of user satisfaction with the b2e portal. In this study, Layout is referred to as the design of the interface and display of the information.

Validation of the Model

The authors are engaged in a long-term research study to develop a reliable and valid tool for measuring user satisfaction with the eHRM applications. The instrument has since been constructed for an b2e portal serving as a eHRM tool, based on the conceptual model described above. An exploratory study has been performed to understand the relative importance of the identified factors for user satisfaction with the b2e portal.

Based on the empirical exploratory study made on a large educational organisation with over 2000 employees and who are also users of a b2e portal managing part of the HR functions, the identified factors leading to employee satisfaction was tested to find the most important ones as follows.

The empirical study had focussed on using all the nine variables identified from the literature survey as above in measuring the employee's perception about the current eHRM b2e portal and their level of satisfaction as well.

During the pre-testing of the questionnaire we found that the dimensions on Security and Confidentiality were not at all recognised as a factor by the employees and was hence dropped from the questionnaire as the question might confuse the respondents. Communication also had to be dropped as this aspect of b2e had not been implemented by the eHRM portal yet.

Finally the questionnaire that was administered had questions that concerned both satisfaction about the eHRM b2e portal as well as the following dimensions

1. Ease of Navigation
2. Efficiency in finding information relevant for the user-consumer
3. Clarity of the available information (another facet of information efficiency)
4. Layout and visual aesthetics of the portal
5. Currency of the information
6. Ease of entering and exit from the portal for the user-consumer

based on the employee's perception about the intra-net and the level of awareness, we found that it is possible to create a model using the multiple regression to predict the level of user satisfaction given the attention given to the following dimensions of the eHRM b2e portal in the order of their relevance.

1. Currency of information
2. Clarity of information
3. Efficiency in finding relevant information
4. Ease of Navigation

The other two factors, namely layout and visual aesthetics as well as ease of entry in to (log-in) and exit (log-out) from the application had very low level of significance in predicting portal use satisfaction.

It is needed to study further on why the other dimensions like security and confidentiality were not taken seriously by the employees of this organisation. The authors however do not

plan to drop these three dimensions (security, confidentiality and communication) in their future validation studies for the model.

Future plans of this study include collection of data through questionnaires for the purpose of conducting confirmatory study and establishing construct validity, which includes discriminant validity, convergent validity, external validity, and predictive validity across a wider variety of organisations including other sectors.

CONCLUSION

This paper presents a conceptual model that uses a few dimensions which belong to the domain of user satisfaction with the eHRM b2e portal. The model forms the basis on which a new instrument to measure user satisfaction with such portals has been developed.

The model has been validated in a limited fashion with a large organisation practising eHRM application based on an intra-net based b2e portal and has been found to be having a good predictive ability for user satisfaction.

It has thus laid the groundwork for expanding research on user satisfaction studies within web-based eHRM environment using the same model across other organisations.

Appendix

Dimensions of eHRM User Satisfaction Conceptual Model

Group	Factor	Source
Information Quality		
Information Content	Content	Doll & Torkzadeh (1988)
	Knowledge content	Ong & Lai (2004)
	Usefulness of content	Yang, et.al (2005)
	Adequacy of information	Yang, et.al (2005)
	System output	Nath (1989)
	Accuracy, format, preciseness	Chen, et.al. (2000)
	Information	Huang, et.al. (2004) Bailey & Pearson (1983)
	Reliability	Bailey & Pearson (1983)
	Currency	Bailey & Pearson (1983)
	Completeness	Bailey & Pearson (1983)
	Information comprehensiveness	Muyllle, et.al. (2004)
	Relevancy	Bailey & Pearson (1983)
	Information relevancy	Muyllle, et.al. (2004)
	Information comprehensibility	Muyllle, et.al. (2004)
Format of output	Format of output	Bailey & Pearson (1983)
	Format	Doll & Torkzadeh (1988)
Volume of output	Volume of output	Bailey & Pearson (1983)

Dimensions of eHRM User Satisfaction Conceptual Model (Contd....)

Group	Factor	Source
System Quality		
System accuracy	Accuracy	Huang, et.al. (2004) Bailey & Pearson (1983) Doll & Torkzadeh (1988)
Timeliness	Timeliness of content	Doll & Torkzadeh (1988) Bailey & Pearson (1983)
	Response/turnaround time	Bailey & Pearson (1983)
	Website speed	Muyllle, et.al. (2004)
	Processing speed	Yoo & Donthu (2001)
	Response time	Loiacono, et.al (2002)
Ease of use	Ease of use	Doll & Torkzadeh (1988)
Ease of use		Cho & Park (2001)
	Ease of use	Muyllle, et.al. (2004)
	Ease of use	Yoo & Donthu (2001)
	Learner interface	Wang (2003)
	Ease of understanding	Loiacono, et.al (2002)
	Intuitive operation	Loiacono, et.al (2002)
	Usability	Chin, et.al (1988)
	Usability	Yang, et.al (2005)
	Knowledge manipulation	Ong & Lai (2004)
Flexibility	Flexibility	Bailey & Pearson (1983)
Usefulness	Information fit to task	Loiacono, et.al (2002)
	Perceived utility	Bailey & Pearson (1983)
	Fulfillment of end users needs	Chen, et.al. (2000)
Convenience	Convenience	Huang, et.al. (2004)
	Convenience of access	Bailey & Pearson (1983)
	Accessibility	Yang, et.al (2005)
Security	Security	Huang, et.al. (2004)
	Security of data	Bailey & Pearson (1983)
	Security	Yoo & Donthu (2001)
	Trust	Loiacono, et.al (2002)
System efficiency	System efficiency	Nath (1989)
System capabilities	System capabilities	Chin, et.al (1988)
	System characteristics	Nath (1989)
Personalisation	Personalisation	Wang (2003), Ong & Lai (2004)
Knowledge map	Knowledge map	Ong & Lai (2004)

Dimensions of eHRM User Satisfaction Conceptual Model (Contd....)

Group	Factor	Source
Communication	Learner community	Wang (2003)
	Knowledge community	Ong & Lai (2004)
	Interaction	Yang, et.al (2005)
Hyperlink connotation	Hyperlink connotation	Muylle, et.al. (2004)
Language customisation	Language customisation	Muylle, et.al. (2004)
Tailored communication	Tailored communications	Loiacono, et.al (2002)
System Design Quality		
Layout	Interface	Huang, et.al. (2004)
	Screen	Chin, et.al (1988)
	Site design	Cho & Park (2001)
	Entry guidance	Muylle, et.al. (2004)
	Website structure	Muylle, et.al. (2004)
	Layout	Muylle, et.al. (2004)
	Aesthetic design	Yoo & Donthu (2001)
	Visual appeal	Loiacono, et.al (2002)
Innovativeness	Innovativeness	Loiacono, et.al (2002)

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