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Wiki as a Customer Knowledge Management Tool in Websites

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ABSTRACT

The present research is conducted to show that organizations can use wiki to attract customers purchase intention inside the e-commerce context. Considering the relation between wiki and ecommerce for CRM, this research tries to explore the characteristics such as perceived risk, customer experience, knowledge sharing culture, trust and knowledge sharing in wiki tool impact on purchase intentions in the web site. By using multidimensional analysis, this study shows that choosing a suitable tool for hosting in the websites in order to gather essential knowledge from customers plays an important role in explaining certain customer online behavior. In particular, the researchers propose a model that explains wikis require a culture of collaboration and sharing in an online environment to achieve a win-win situation between customers and producers.

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1. Introduction

With the growth of knowledge-based economy and electronic commerce, the methods of collecting data and managing valuable knowledge from available knowledge have become an important issue for all industries [24]. With the dramatic expansion of communication technologies in worldwide Internet, web applications can exert developed and evolved services in a social and interactive ways. Web applications in the early stages of the Internet were mainly related to the read-only services, as an interactive mechanism usage to enable Internet users to promote knowledge contents in the shared areas, technologies and approaches are identified to creat social networks and allow users to develop the web content and provide a new form to exchange and retrieve of knowledge in the internet [20].

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In the meantime, with the advent of web 2.0, wiki has appeared as a simple yet powerful web-based collaborative authoring system with high flexibility for creating and editing content. Since its introduction in the mid-1990s, wiki has been used for business as well as education and online publication and is became a useful tool that promotes sharing and collaborative creation of web content[9].

Currently, wiki is a popular knowledge sharing tool well-known to most web users. We use this platform to achieve the goal of knowledge sharing between customers and producers. The producers can make use of knowledge more efficiently for innovating and developing their products and the novice customers can build up the fundamental knowledge about corporate product quickly.

The paper is organized as follows. First, the knowledge management and e-commerce contents, the relationship between CRM and KM and using wiki as CKM tools are reviewed in section 2. In section 3, the research model and study hypotheses are presented based on theoretical and empirical rationales. Then, the

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methodology and data analysis and results are explained in section 4. Finally, conclusions and implications of the findings are discussed and future research lines are discussed in Section 5.

2. Knowledge Management in e_Commerce

According to Alavi and Leidner [2], knowledge is the information processing that takes place in human minds, as well as personalized information related to facts, procedures, concepts, interpretations, ideas, observations, and judgments [24] and KM is the explicit and systematic management of vital knowledge and its associated processes of creation, organization, diffusion, usage and exploitation and communication both tacit and explicit knowledge of employees so that other employees may utilize them in order to be more effective and productive in their work and maximize organization's knowledge[22]. Plessis, Boon (2004) defined that Knowledge management ensures the availability and accessibility of knowledge on the issues strategic to the business, including markets, customers, suppliers, products and services, competitors, employee skills, processes and procedures and the regulatory environment [13] .

In an online environment KM and e-commerce complement each other, as a way of electronic CKM and make it possible for producers to obtain priceless information and knowledge from customers about their needs and purchase intentions. In other words, the factors that impact the success of ecommerce increasingly depend on knowledge management [11] . Knowledge management can integrate disparate groups or departments that are located in different geographical locations and allow a quick and effective flow of knowledge between them.[13].

2-1. CRM+ KM= CKM

Garrido-Moreno, Padilla-Melendez.(2011) after reviewing the literature about customer relationship management(CRM) stated that CRM is a business strategy which aims to establish and develop value-creating relationships with customers based on knowledge. Using IT as an enabler, CRM requires a redesign of the organization and its processes to orient them to the customer, so that by personalizing its products and services, the firms can optimally satisfy customers' needs, and thereby generating long-term, mutually beneficial and loyalty relationships[6]. And Zablah et al. (2004), see the KM as the main sub process of CRM because, to manage CRM effectively, companies must develop capabilities related to customer KM processes [24].

Desouza & Awazu(2005 defined Knowledge management from customers including three type of levels that can be used to enhance the ability for abstracting the customers intention and knowledge "for" ,"from" and "about" customer usage for CRM. The differences among these types of knowledge were indicated in e_ckm model of sue and et lc(2006). The knowledge "for" customer is used to identify the benefits and features of product to consumers, the knowledge "about" customer is utilized to categorize customer needs and the advantage of knowledge "from" customer is taken to segment needs and pattern extraction.

Lopez-Nicolas and Molina Castillo(2008) in their research introduced four common web tools in companies' CKM (Shared databases, Document repositories, Workflow applications and Discussion forums) for hosting in websites to collect customer knowledge and concepts, and their findings showed that choosing suitable tools for hosting in websites for linking customers and producers, plays an important role in reducing customers perceived risk[11]. For considering these reasons we have chosen the wiki tool for collecting the required data about customer because this tool doesn't need any extra information from customers.

2-2. Wiki Use in CKM

Yang & Liu (2009) using blog to set a new standard of online customer service process said that conventional production-oriented enterprises have shifted towards a customer-oriented approach, thus, nurturing long-term relationships with customers is crucial in the success of customer-oriented enterprises. To deliver high-quality services, corporations can use wikis such as blogs, as websites which are created by users in web browser and is different from other websites. In this kind of website everyone can create a new pages as well as adding, editing or deleting the content in an existing page thereby creating a "freely, expandable collection of interlinked web pages"[10]. As such, wikis can be used to enable customers to not only access but also change the organization's Web presence, creating previously unheard of opportunities for joint content development and "peer production" of Web content[21]. Wikis are also used for external collaboration with customers and business partners. Wikis overcome distance barriers with customers and logistics of sharing information [18] . Prasarnphanich and Wagner argue that wiki offers more opportunities for collaboration than other web2. Unique characteristics such as collaborative authorship, instant publication and versioning and simplicity of authorship make wiki as a favorite tool for knowledge sharing of customers in websites [18].

3. Factors Affecting Knowledge Sharing and Purchase Intention in Wiki tool

Recently, consumer shopping intention in the context of online stores has attracted increasing attention and satisfactions of customers become a vital element for corporation. Based on an extensive literature review on the topic, a model for wiki tool implementation was developed, while considering Knowledge sharing as the main factor and other factors mentioned in the literature are: culture, customers' experiment, perceived risk and trust.

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These factors can have direct or indirect effects on purchase intention of customer in an online environment success. A direct effect is considered as a direct impact of the factor in the wiki success. An indirect effect is considered as an impact in the wiki success not directly but through other factors. Many factors may explain how we can use wiki to increase customer intention, but the present article focuses on the knowledge sharing factor in order to shed light on the variables affecting consumers' purchase intentions in the online context (Fig. 1).

3-1. Culture of Knowledge Sharing and Knowledge Sharing

Culture is a set of key values that are widely accepted by members of organization. Culture is socially learned and transmitted by members, and can be found in any fairly stable social unit, of any size, as long as it has a reasonable history. In summary, culture provides norms/rules for behavior in organizations [23]. Yang said that there was a strong and positive relationship between a collaborative culture and the effectiveness of knowledge sharing. Many factors including environmental, managerial and technical factors influence the sharing of knowledge, that all of these factors are affected by organizational culture. Because of the knowledge embedded in individual values, culture persuades community members to share what they know. Based on previous research, we posit that sharing knowledge culture may be a factor in increasing information exchange in the online context. [25] H1. Culture of knowledge sharing has a positive influence on knowledge sharing in wiki.

3-2. Trust and Knowledge Sharing

Chai, Kim (2010) in their exhaustive review found that there is a positive relationship between contributors trust and their knowledge sharing practices [3]. This study explores trust in multiple dimensions including economy-based trust, trust in bloggers, trust in the Internet and trust in blog providers. This study investigates the role of trust in blog environment but the researcher generalizes this factor to the wiki tool, because in some aspect both of them have similar features.

Renzl (2008) states that trust in management is an important prerequisite for knowledge documentation and documentation of knowledge has a positive impact on knowledge sharing. Documentation of knowledge serves as mediating variable between trust in management and knowledge sharing [16]. According to the knowledge sharing between online community members, trust plays an important role in encouraging members to share knowledge and information.

These statements give us the chance to formulate the following hypothesis:

H2. The higher level trust between members, the higher knowledge sharing

3-3. Perceived Risk, Knowledge Sharing and Purchase Intention

Perceived risk involves the amount of feeling that would be lost if consequences of an act were not favorable [12]. In several literatures introduced different dimensions of perceived risk associated with the product and place. Perceived risk about product includes technical, service, social and psychological risk and about place this risks contains performance, financial, time and delivery risk[11],[4],[5].When consumers perceive higher risks, it is less likely that they will buy the products. Consumers perceive higher risks in online shopping than in physical store shopping because consumers will face higher uncertainty in achieving shopping goals [5].

H3. Knowledge sharing in website with wiki tool reduces the perceived risk with customers.

H4. The lower perceived risk with customers occurs to higher purchase intention in a website which is hosted with wiki tool.

3-4. State Customer Experience in Wiki and Purchase Intention

Experienced e-customers are people who have made at least one e-purchase and think about continuing to do so. for online customer experiences, perceived ease-of-use, perceived usefulness, skill, perceived control, perceived benefit, perceived risk, and trust can be mentioned[8]. Tsou, Yu Hsu(2011) proposed that through delivering customer experiences on blogs, consumers are more likely to have the intention to purchase products. Considering this statement and expand these results to wiki such as blog, we propose that:

H5.customer experiences have an influence on increasing purchase intention.

3-5. Knowledge Sharing in Wiki and Purchase Intention

Being able to know customer's expectation is a key competitive factor and should be seen as an invaluable asset for the enterprise and this leads to build a desirable mutual relationship. This relation develops in business through technology and provides a variety of effective ways for both sides to be in knowledge transaction with each other. On the other side, the crucial point here is the constant changes in customer needs and satisfactions, since several ways of getting information have been provided and expanded due to the technology upgrading. It also enables customers to have a wide variety of choices in the market with the knowledge that is promoted in the websites where all the users and consumers can see this idea about the productions [19]. Behavioral intention of customer associated with websites in many times depends on positive remarks or comments about the websites and products[7].

H6.Sharing knowledge in wiki has a positive influence on purchase intention in an online environment.

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4. Methodology

4-1. Sample and Data Collection

In order to prove our hypotheses we conducted an experiment among Internet customers. A sample of 254 people who bought modems from one of Iranian ISP Corporation was chosen. The sample was selected with an attempt to concentrate on people who are familiar with these kinds of instruments. A self-administered questionnaire was prepared for being used in the survey, and it was pre-tested on 20 IT and Business experts. A number of suggestions were made on how to improve the questionnaire substantially. Once the modifications were included, the questionnaire was given to the subjects who at least have an experience in the online environment. The survey instrument started with several questions concerning previous e-commerce experience, and these were followed by sections where each customer was asked to value the sharing knowledge and purchase intentions associated with wiki tool in the websites. Questionnaire was attached with a description of wiki as a CKM tool on a web site and its main utility for firms and customers.

4-2. Measure Development and Scale Properties

The variables for this research were measured via using multi-item scales tested in previous studies. The response categories for each scale were ranked between 1 (strongly disagree) and 5 (strongly agree). This procedure has also been consistently applied in the literature. For measuring the perceived risk component we drew upon the work of the authors that proposed this construct Lopez-Nicolas, C.Molina-Castillo, F, J. (2008); Chang, E. ,Tseng,Y.(2011); Forsythe, S.,Shi,B.(2003) we considered five of the components most frequently cited in the literature and related to the risk associated with the product and the place that offers the product (Quality risk, Financial risk, psychological risk, delivery risk, information risk).

Trust was assessed through the work of Chai, S.Kim,M, (2010), customer experience was measured through the work of Hsu, H .Tsou,H.(2011) culture of knowledge sharing based on the work of Yu,Lu,Liu(2010) and Abili, Narenji, Mokhtarian, Rashidi(2011), knowledge sharing was investigated through Reychava, (2009) and Purchase intention was measured through the study of Pookulangara, s.,Koesler,K., (2011).

4-3. Reliability and Validity

The composite reliabilities and the average variance extracted were calculated to assess the reliability. The results in Table1 shows that the composite reliabilities of all items were above the 0.70 recommended levels, meantime, the average variances extracted by our measures, which ranged from 0.5o to 0.66, were above the acceptability value of 0.5. Discriminant validity can also be assessed from the latent variable correlations matrix (Table 2), where the square roots of the AVE values, calculated for each of the constructs along the diagonal, are reported.

The correlations between the constructs are reported in the lower left off-diagonal elements in the matrix. Average variance shared between a construct and its measures should be greater than the variance shared between the constructs and other constructs in the model. Discriminants are deemed to be valid when the diagonal elements (square root AVE) are greater than the off-diagonal elements in the corresponding rows and columns. As can it is shown in Table 2, discriminant validity is satisfactory. Overall, the measures show very good reliability and validity[16].

4-4. Data Analysis and Results

The hypotheses were tested using covariance structure analysis with Lisrel 8.8. First, the overall fit of the observed data to the model was tested. The first test yielded a chi-square value of

523.98 (df = 390 p =.000, $\chi 2$/df=1.34). The literature suggests that the chi-square test is only recommended with moderate samples of 100–200 because with larger sample sizes trivial

differences become significant .We conducted a confirmatory factor analysis (CFA) including the independent and dependent constructs with Lisrel 8.8 for the Wiki model, The principal adjustment indices of the six factor model for wiki tool suggest a good fit of the specification for our measures of the independent and dependent variables. All of the loadings for the items on their respective constructs were large and significant, which provides evidence of convergent validity.

4-5. Path Coefficients

Fig. 2 reports the path coefficients, their significance levels, and the T-values of the full model. Trust with (β=0.29,p<.01,T-value=2.4) and culture of knowledge with (β=0.67,p<.01,T-value=4.82) significantly influence on knowledge sharing. The knowledge sharing have a significant impact on perceived risk and purchase intention: it affects perceived risk (β=-.66,p<.01,T-value=-6.53) and purchase intention (β=.43,p<.01,T-value=4.57); perceived risk affects purchase intention (β-0.33,p<.01,T-value=-3.76) and another factor that impact on purchase intention is customer experience (β=0.32,p<.01,T-value=4.65)

For all of these reasons we can thus confirm Hypotheses 1–6.

5. Conclusion and Implications

In the previous sections have been demonstrated that how wikis could use as a relationship tool between customers and producers. We also highlighted some of the factors that are related to wiki adoption and usage to improve contribution between users.

The findings of this study clearly extends prior researches which show that knowledge management in

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e-commerce has an impact on customer relationship management via exchanging information between customers and producers. This research clarifies that wiki can be used as a host in websites for attracting customers to express their opinions and feeling about quality of productions and organizations and others consumers can use these points to make decision to buy these products or not.

On the other hand, managers and producers can employ the collective knowledge as a database for having innovation and creativity in future designing and manufacturing. This paper emphasizes that knowledge sharing should be supported with two factors: culture of knowledge sharing and trust between customers and organizations. For achieving this goal, managers must consider motivational factors to encourage people to exchange their tacit knowledge to explicit knowledge.

On the other hand, after investigating the dimensions of perceived risk that are associated with product and the place where products are offered, as outlined in recent studies, researchers also found that using sample and popular tool in online shopping can reduce unsatisfied feeling among people.

While using wikis in order to enhance the customer intention in the online environment, previous customers' experiences and knowledge sharing between them should always be considered, since these factors can encourage customers to continue buying what they need from websites that wikis are hosting on them.

Finally, further research is needed for comparing wiki with other KM tools such as blog, or discussion forums in customer relationship management and finding the best way for learning to users to add, edit or delete the contents easily in websites and without difficultly to enhance the connection between organizations and users.

The other subject that must be investigated in future study is, identifying the factors that influence on trust between customers in wiki tool in order to help managers to have a good relationship with customers for introducing to them more innovations in their future's productions.

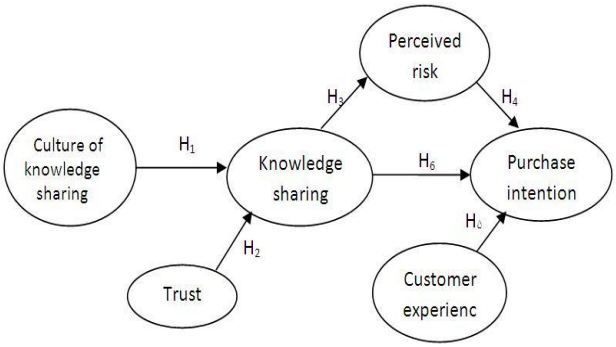

Fig. 1. Wiki tool in customer knowledge management

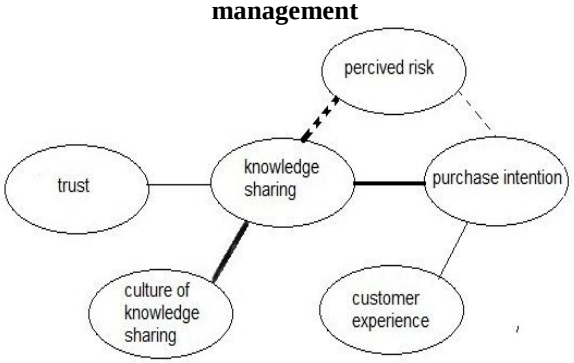

Fig. 2. Final estimated model

(χ^2/df=1. 4 , CFI=0.98 , NFI=0.95 , NNFI=0.98 , RMSEA= 0.046 , SRMR=0.054)
Significant level: p<0.01

Tab. 1. Reliability of model

	No. of items remain	CR	AVE
Perceived risk	4	0.82	o.53
trust	4	0.89	0.66
Culture of knowledge sharing	4	0.79	0.50
Customer experience	4	0.73	0.51
Knowledge sharing	4	0.86	0.50
Purchase intention	6	0.86	0.51

Tab. 2. Latent variable correlation matrix

	Perceived risk	trust	Culture of knowledge sharing	Customer experience	Knowledge sharing	Purchase intention
Perceived risk	0.53					
trust	0.25	0.66				
Culture of knowledge sharing	0.48	0.48	0.50			
Customer experience	0.11	0.10	0.17	0.51		
Knowledge sharing	0.21	0.32	0.27	0.18	0.50	
Purchase intention	0.36	0.38	0.49	0.25	0.30	0.51

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