Student Journalists Acceptance on Collaborative Writing Wikis

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ABSTRACT

The objectives of the study are to identify relevant key intention determinants to Wikis use and to better understand the knowledge creation processes through an investigation of the individual planning and writing patterns. Surprisingly, perceived usefulness (technology utility) was found not significant to intention to use; while image became the strongest determinant to behavioral intention to use. Individual factors such as computer self-efficacy, personal innovativeness with technology were both significant determinants. Open-end survey items collected significant details from individual student journalists about their knowledge creation processes. Implications to Wikis implementation and limitations of the study are discussed.

1. INTRODUCTION

A Wiki is a website that can be edited by anyone. The very successful case Wikipedia, the free encyclopedia, has 13,000 active contributors, working on over 3,800,000 articles in more than 100 languages (Wikipedia, 2006). With the Wikis technology, companies push for corporate collaboration (e.g., Fontana, 2006) and enterprise operation (e.g., Gibbs 2006); while education institutions employ to enhance teaching and learning processes (e.g., Naish, 2006; Raman et al. 2005).

However, Wikis system will not work if no one uses it. This is especially true as Wikis typically is a collaborative tool that requires users to create and enrich the content. "Researching the background of Wikis use indicates that like all new ways to improve on existing services introducing Wikis requires a carefully managed rollout and some real effort," (Gibbs, 2006). It is therefore important to study the Wikis phenomenon to better understand the process in order to provide better guidance to implementation strategies.

Therefore, the objectives of the study are to: (1) to identify relevant key motivators to Wikis system use; and (2) to better understand the knowledge creation processes through posting using Wikis.

The paper is organized as follows. The next section matches motivational variables from prior literature and an analysis of the Wikis phenomenon. Hypotheses are developed to explain effects of the variables toward the intention to use of Wikis systems. Then, research methodology is explained with details in subjects, data collection and data analysis methods. Results of data analysis and model testing are reported. This is followed by a post hoc analysis of the process of use patterns. Implications, limitations and conclusions are discussed at the end.

2. LITERATURE REVIEW

Wiki is described as one of the most promising and rapidly emerging innovations in knowledge management (Gordon 2006). Basically, a Wikis "is a type of website that allows users to add, remove, or otherwise edit and change all content very quickly and easily, sometimes without the need for registration," (Wikipedia, 2006). Wikis is an information resource centralized online database nature and a powerful collaboration tool because of its open editing characteristics (Naish, 2006). While good e-learning is about informing, collaborating and meeting online, Wikis do all these things well (Naish, 2006).

User technology acceptance has been studied considerably in prior IS research (e.g., Legris, Ingham & Collerette 2003; Venkatesh, Morris, Davis & Davis 2003). A survey of prior studies identifies several perspectives on key intention determinants to technology acceptance, including technology utility perspective, social perspective and individual perspective.

Technology Utility Perspective: Perceived usefulness, which refers to the degree to which a person believes that using a particular system would enhance his or her job performance (Davis 1989, p.320), was found to be a key determinants to acceptance, across a variety of technologies, including standard office tools (e.g., Hu, Clark & Ma, 2003); email (e.g., Kettinger & Grover 1997); computer-based training system and rapid application development software (e.g., Bhattacherjee & Premkumar 2004), and mobile multimedia services (e.g., Pagani 2004).

Social Perspective: Wikis provide a transparent platform for users' interaction and information exchange that increase the socialization process, enabling collaboration to generate fast final output (Gordon 2006, ibid). Prior studies found that social determinants, including social influence, social presence and image, affected behavioral intention to technologies. Social influence, defined as the degree to which an individual perceives that important others believe he or she should use a system (Venkatesh et al. 2003, ibid), is a direct determinant of behavioral intention to technology (e.g., Venkatesh et al., ibid), however, it is also found that significant direct effect only appeared in mandatory organizational settings (e.g., Venkatesh & Davis, 2000). Social presence is the degree to which people establish warm and personal connections with each other in a communication setting (Short, William & Christis 1976). On the one hand, social presence / perceived information richness is based on a medium's ability to provide feedback, offer numerous cues, be personalized, and rapidly synthesize complex information (Daft & Lengel, 1986) and empirical studies found that higher perception of system's social presence and feedback results in greater use of the system (Kettinger & Grover, 1997, ibid). However, from the collaborative perspective, reduction in social presence cause users to be more ready to give up their positions in favor of the collective position in the communication setting, hence, cause users to be more uninhibited during discussion (Jessup, Connolly & Galegher, 1990) and cause users to generate more novel arguments and engage in more one-upmanship behavior (Sia, Tan & Wei, 2002). Image is defined as the degree to which use of a system is perceived to enhance one's image or status in one's social system (Moore & Benbasat, 1991) and this the perceived image / status enhancement variable is found to be a significant determinant to attitude towards a system (e.g., Karahanna, Straub & Chervany, 1999); and a significant determinant to perceived usefulness towards a system (e.g., Venkatesh & Davis, 2000, ibid). Identification refers to one's conception of self in terms of the defining features of a self-inclusive category (of the system, in particular, the Wikis online community) that renders the self stereotypically "interchangeable" with other group members, and stereotypically distinct from outsiders (Hogg, 1992). Identification resembles aspects of normative and informational influence (Deutsch & Gerard, 1955), as well as referent power (French & Raven, 1959), and is characterized by the community member's social identity. However, prior studies found that social identity has only indirect significant effect through desire towards intention (Dholakia 2004) but has no significant direct effect on behavioral intention to virtual communities (Bagozzi & Dholakia 2002).

Individual Perspective: Computer self-efficacy reflects an individual's beliefs about his or her capabilities to use computers (Compeau, Higgins & Huff, 1999, p.147) and was found to be a determinant to system acceptance (Compeau et al., 1999, ibid) and a significant anchor to perceived ease of use (Venkatesh 2000). Personal innovativeness with technology represents the degree to which an individual is willing to try out any new information technology (Agarwal & Prasad, 1998). Personal innovativeness with technology influences system usage via their effects on perceived usefulness and perceived ease of use beliefs (Lewis, Agarwal & Sambamurthy, 2003) and had significant correlation with usage intention (Agarwal & Prasad, 1998, ibid).

Table 1. Summary of research variables and the corresponding hypotheses

Research Variables	Hypotheses	Source
Perceived Usefulness	H1*: Individual users' perception on the usefulness of Wikis would influence behavioral intention to the use of Wikis.*	Davis (1989)
Social Influence	H2*: Social influence is a direct determinant of behavioral intention to use Wikis.* H3*: Social influence has a positive direct effect on perceived usefulness of an individual user towards Wikis.*	Venkatesh & Davis (2000)
Social Presence	H4*: Social presence is a direct determinant of behavioral intention to use Wikis.* H5*: Social presence has a positive direct effect on perceived usefulness of an individual user towards Wikis.*	Kettinger & Grove (1997)
Image	H6*: Image is a direct determinant of behavioral intention to use Wikis.*	Karahanna et al. (1999); Moore & Benbasat (1991)
Social Identity	H7*: Social identity is a direct determinant of behavioral intention to use Wikis.*	Bagozzi & Dholakia (2002); Dholakia et al. (2004)
Personal Innovativeness with Technology	H8*: Personal innovativeness with technology is a direct determinant of behavioral intention to use Wikis.*	Lewis et al. (2003); Agarwal & Prasad (1997)
Computer Self-efficacy	H9*: Computer self-efficacy is a direct determinant of behavioral intention to use Wikis.*	Compeau et al. (1999)

3. MOTIVATION & HYPOTHESES DEVELOPMENT

This study aims at exploring the key intention determinants of collaborative writing platform Wikis in order to shed light on better strategies to the successful implementation of Wikis. Table 1 summarizes the constructs and the corresponding hypotheses.

4. METHODOLOGY

4.1. Background

Since February 2006, a Student-Written Wiki (named, HKNews) has been setup for the Department of Journalism & Communication at a private local university in Hong Kong. All the students in the department can access to HKNews and participate in the development of this online shared knowledge base by contributing original real everyday life news stories to HKNews. Students enroll in different news writing and editing courses under the undergraduate journalism program and contribute their writing assignments to the shared knowledge base. Finally, the HKNews becomes an updated shared web-based knowledge resource for both the undergraduate students and the general public.

4.2. Subjects

There are in total 526 undergraduate students in the Department of Journalism and Communication. At the end of the academic year 2005-2006, a survey instrument was distributed to all of them through individual course lecturers. 138 (26%)

Table 2. Background of respondents

Demographic Variable	Sample Composition
Gender	Male: 28(20.3) Female: 110 (79.7)
Age	Mean: 21.5
Year of Study	Yr 1: 15 (10.9%) Yr 2: 40 (29.0%) Yr 3: 66 (47.8%) Yr 4: 17 (12.3%)
Computer Experience	Very little: 15 (10.9%) Fair: 75 (54.3%) Good: 45 (32.6%) Expert: 3 (2.2%)
Wikis Experience	Not at all: 7 (5.1%) A little: 38 (27.5%) Fair: 51 (37.0%) Familiar: 41 (29.7%) Very familiar: 1 (0.7%)
General Computer Usage	Rarely: 5 (3.6%) Sometimes: 22 (15.9%) Frequently: 47 (34.1%) Always: 64 (46.4%)
General Internet Usage	Rarely: 5 (3.6%) Sometimes: 15 (10.9%) Frequently: 47 (34.1%) Always: 71 (51.5%)
Visit, read or post articles on HKNews Wikis site last month	Rarely: 57 (41.2%) Sometimes: 47 (34.1%) Frequently: 27 (19.6%) Always: 6 (4.3%) Missing data: 1

questionnaires were completed and returned. The low response rate was partly due to the high absent rate at the last class.

4.3. Methods

The survey instrument was divided into three parts. Part A collected demographic data and usage pattern of the respondents. Part B consisted of 28 statements asking their opinion toward HKNews Wikis system in a seven point Likert's scale where 1 represented strongly disagree and 7 represented strongly agree, except computer self-efficacy which was measured by a ten point scale ranging from not at all confident to totally confident. The 28 statements included eight constructs in total and the items were adopted from various prior studies (see Table 1). Part C consisted of 8 open end questions asking about the process of writing for HKNews. This serves as a post hoc analysis to provide explanation to the use pattern.

5. ANALYSIS AND RESULTS

5.1. Instrument Validity

Construct items have means ranging from 3.36 to 4.93 (standard deviation ranging from 0.89 to 1.38), except computer self-efficacy items ranging from 6.32 to 7.28 (standard deviation ranging from 1.69 to 1.85). Internal construct consistency was evidenced by Cronbach's alpha coefficients ranging from 0.77 to 0.96, where the literature suggests a threshold of 0.7 or above (Nunnally & Berstein, 1994).

Construct validity of the measurement instrument via discriminant and convergent validity was analyzed. Exploratory factor analysis (using Principal Component extraction method, and Varimax with Kaiser normalization rotation method) found that construct items' factor loadings ranging from 0.69 to 0.91, well above the suggested 0.5 for significant loadings for corresponding component (Hair et al., 2006) while no significant cross-loadings between components were found.

5.2. Model Testing Results

We tested the model with structural equation modeling conducted by LISREL 8.71. The chi-square to degree of freedom ratio was 2.23, satisfied the requirement of being less than 3.0 (Hair et al., 2006). The goodness-of-fit indices, including NNFI, CFI, IFI were all 0.89, close to the suggested level of 0.9 (Hair et al., ibid, 2006). However, GFI has a lower value than suggested (0.71). The limitation of the interpretation of model testing results will be discussed further in later sections of this paper.

The path coefficients were listed in the model testing results diagram below (see Figure 1). Social presence and social influence combined together explaining 32% variance of perceived usefulness ($R^2=0.32$, for reduced form) while all constructs had a combined effect explaining 60% variance of intention to use ($R^2=0.60$, for reduced form).

Figure 1. Structural equation modeling testing results
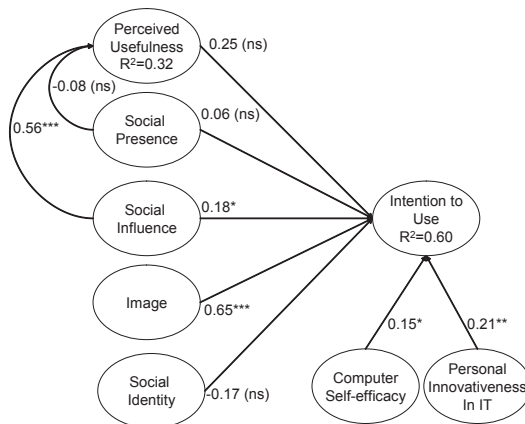
*p<0.05; **p<0.01; ***p<0.001; ns: non-significant*

6. POST HOC ANALYSIS

Respondents were asked to freely express themselves about the use pattern of HKNews at Part C of the questionnaire. All the answer scripts were typed and coded for analysis.

Benefits from Using Wikis: Fewer than half of the respondents expressed a positive attitude from using the system, "lots of reference," "to increase knowledge," "can read others' articles easily," "search for topics or ideas to write." On learning, "convenient for me to find my work," "can check and review (my) own articles at anytime easily," On the system features, "convenient," "user-friendly," "easy to use," "highly access (accessible)," "beautiful layout." A way to publication seems important to the student journalists, "many people can read my writing," "have own record for the public to know." On the other hand, about one-fifth of the respondents, however, showed negative attitude in using the system, "it increases workload," "complicated and a waste of time," and having "poor group pressure (to do so);" and about the system, for example, "it is complex," "difficult to get start and use," "no instructions / instructions not clear enough," "not user friendly," "quite confusing," "speed is low," "not personalized / non-private," while "works are easily deleted by others."

Taking Reference: A significant majority did not read articles before writing their own, because of time constraints, "How come we have time!" "It would affect the planning of my writing," Even they read, they may read only the "topic" or "headline" "focus on the lead of article,"; "to avoid my content of my article (are) the same as the others." Taking references also has benefits "to learn more things about one event," "notice their view point in article and match with mine, so that I can have larger range of opinion,"

How to choose articles? Nearly half of the students do not plan their reading but choose articles at random. Nearly one quarter chooses someone they know; while another quarter chooses someone works better. The reasons for taking references at random because "there are too many articles," "there are so many people on HKNews that I don't know so I just read randomly with no special preference," "I don't know whose working is better than me / especially in different years," just "for interest," "just search the articles which the titles are attractive," "depends on the heading/titles," "I want to read different style of articles," "want to read different people especially from someone I don't know," "to get more detailed information and different angles," "to take a look of the work pattern or what would other choose to write,"

The reasons for them to choose someone they know, such as "I am not interested in reading articles of unknown people," and "I know him/her and realize his/her standard of writing skills."

7. DISCUSSION

Based on prior validated scales, this study examines key intentional determinants of student journalists acceptance to collaborating writing platform Wikis, in which Wikis are used to develop a shared online resources of a specific context. The scale validity is once again confirmed and the model fit is found acceptable. The strength of individual constructs is then measured by their path coefficients. Here follow the discussion of the analysis results.

Technology utility perspective: Surprisingly, perceived usefulness is found non-significant in the overall model, contradictory to most of the prior empirical work in technology acceptance (Legris et al., 2003). However, there may be plausible reasons for the results. In the past, students submit written news articles in hardcopies to instructors. Posting news articles onto Wikis takes students extra time and effort but do not help the writing process. At the beginning stage of the deployment of Wikis, shared resources are not rich enough to create value for students to help the different writing stages in planning, generating ideas, and taking references. While acknowledging the long term benefits in developing such an online shared resource, it is also a fact there is no immediate short term benefits to student journalist users because creating this shared resource changes the work pattern and needs extra time and effort.

Social perspective: student journalist users create a community while using Wikis. Everyone's work becomes transparent to all users. Users interact with each other through the listing of news headlines, news articles, and the profile of individual student journalist. However, this does not mean that all social factors significantly determine individual users' acceptance decision. The model testing finds that social presence and social identity are non-significant to intention to use. Social influence, on the other hand, has a direct significant but weak effect

on intention to use and has a very strong and significant effect on perceived usefulness. Moreover, image is the strongest social factor that significantly affects intention to use. As discussed above, users do not realize the short term value of Wikis at the time being. However, at the time users recognize the technology utility benefits of Wikis, social influence would become a strong and significant determinant which has both a direct and indirect effect on intention to use. Image, as a determinant to acceptance decision has empirical support from prior studies (e.g., Moore & Benbasat 1991). However, it has never become such a strong determinant against all other utility, social and individual factors. Student journalists have a very strong view on image and correlate it to their acceptance decisions. A review of the items used in measure this construct, it is all about how the individual user view their status, image, and prestige positions of using Wikis in the community. To benefit from this finding, management should try the utmost best to realize student journalists' needs for image concern within the community while using Wikis.

Individual perspective: Both computer self-efficacy and personal innovativeness with technology have direct significant effect on intention to use. This can be explained by the fact that Wikis are really new for most student journalists, actually, new to many organizations and individual users. Those early adopters of technology and those have higher confidence on technology use would most probably have a higher intention to use Wikis. A review of the background of student journalists find that more than 60 per cent of them have only fair or little experience to computers, which support the view that student journalists are more aware of the self-assessment of their own resources, computer skills and Wikis experience in acceptance decisions. Management in deployment of such a large scale of collaborative work should consider providing refresher training courses / workshops and easy to approach technical support, probably by volunteer, peer community users.

8. LIMITATIONS
There are several limitations in this study. The study confines to a specific context that journalism undergraduates using Wikis. Moreover, because of the low GFI value, the model testing results have potential limitations and require additional care in interpreting the results though the measurement instrument exhibits both reliability and validity in data analysis. On the other hand, this is the first year the Wiki system fully implemented while students have only limited usage of the system. This would affect how the students value the system. Lastly, future studies shall examine Wikis effect on quality of written work.

9. CONCLUSIONS
To fully utilize Wikis system, users must use it. Wikis depend on the contribution of participants to enrich the content. Probably it would be a vicarious circle that if users do not find rich content, they would not visit the system. There should be more research in the area in order to better understand the cognitive processes of the individual users, the social processes among the community, and the behavioral processes of how individual users use Wikis.

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