

## The Use of Facebook to Increase Climate Change Awareness among Employees

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**Abstract**—The explosion of Facebook has suggested the richness of new media for effective communications to engage employees. **Aims:** This study examined the usage of Facebook to increase climate change awareness among employees. **By using Media Richness Theory, this research aims to demonstrate that a lean medium such as Facebook can be effectively used for equivocal task, such as raising environmental awareness. Method:** Data was collected using a questionnaire from a sample consisting of 20 employees within the Klang Valley with Facebook account, selected through purposive sampling method. **Results:** The results showed that there is a substantial relationship between perceived media richness of Facebook and the perceived climate change awareness.

**Keywords-** social media, Facebook, Media Richness Theory, climate change

### I. INTRODUCTION

Online social media or social networking is one of the most intriguing phenomena of our times. Its rapid growth has been the subject of numerous discussions, literatures, and research studies. As technology advances, online communities grow in both strength and number. This period has been described as the era of social networking, collective intelligence, participation, collaborative creation, and borderless distribution (Warr, W. 2008). Social media means many things to different people. Since 2005, the use of social networking sites has risen rapidly and the major services, particularly Facebook, continue to attract new users at an astounding rate. While it took mobile phone 14 years to gather 150 million users, it only took Facebook 5 years to gather the same number of users (telephone: 89 years; iPod: 7 years). The use of Facebook as a business tool, however, does come with a risk – it may detract from productivity. This was found to be a common position among employers (Survey, AON Consulting, 2009). While the debate continues, the benefits of using Facebook continue to be recognized by countless organizations, especially its relevance in employee communication and engagement strategies. Not only that, Facebook is also reshaping employee communication.

### II. LITERATURE REVIEW

Social media such as Facebook, MySpace, or LinkedIn provide ways for users to communicate online. Features available include chat, messaging, email, video, voice chat, file sharing, blogging, discussion groups and so forth. Because users can communicate with each other anywhere

and anytime, social media tools become very useful in saving on travel costs during a down economy. Facts and figures on Facebook suggest that this social media tool is gaining popularity as one of the most preferred communication media for employees. The better organizations align their communications to their employees' media preferences, the easier and faster they can achieve results.

Based on the statistics taken from Facebook interface as at March 2009, there are 27 countries in the world with over 1 million people using Facebook. It was noted that Facebook usage in Asia is increasing quickly with both Indonesia and Malaysia showing significant increases in Facebook use. As at December 2008, there were 850,420 Facebook users in Malaysia. Within just three months, the figure rose by 25.7% to 1,069,260 (Facebook interface, 2009). By July 2009, Malaysia is one of the top thirty countries with the highest number of Facebook users at 1,995,040. This represents a 12-month growth percentage of 342.8%.

The rise of social media is evident from the articles in Malaysian local newspaper, The Star, Saturday September 19, 2009, for example, published an article entitled "Communication for the Connected Generation" which reported that by 2010 there will be 17 million Internet users in Malaysia and currently, approximately 100,000 Malaysians are joining Facebook every month. According to the article, 45% of Malaysians are between the ages of 15 and 40, 31% under the age of 15 and in Malaysia, 80% of affluent Malaysians (those with a household income above RM5,000) use social networking sites. Although 2009 witnessed exponential growth of social media in Malaysia, corporations have yet to fully leverage its influence and integrate it into their communications strategies to engage employees in new ways such increasing awareness on climate change..

### III. FACEBOOK

#### A. The Development

Facebook originally required a valid email address with a high school or college domain name to join. This exclusiveness to students is what seemed to have originally set Facebook apart. In April 2006, Facebook opened its registration process to organizations, and more than 4,000 organizations joined within 2 weeks. An average of 250,000 people were registering to Facebook daily. In its factsheet posted online, Facebook describes itself as: Founded in February 2004, Facebook is a social utility that helps people

communicate more efficiently with their friends, family and coworkers. The company develops technologies that facilitate the sharing of information through the social graph, the digital mapping of people's real-world social connections. Anyone can sign up for Facebook and interact with the people they know in a trusted environment. In the US, fully 80% of high school and college freshmen become members by listing their profiles on Facebook even before their first semester started (Jones and Soltren, 2005). There are more than 68 million active users of Facebook.

### *B. Media Richness Theory*

People turn to the richness of the communication channel when selecting which one of the various channels best serves their tasks. According to Media Richness Theory, richness refers to the ability of information and particular media to change human understanding, overcome differing conceptual frames of reference, or clarify ambiguity (Daft and Lengel, 1984). In essence media richness theory is the potential of a particular medium to convey rich information (Kelleher, 2007). According to Daft and Lengel, media richness is a function of:

- (1) The medium's capacity for immediate feedback,
- (2) The number of cues and channels,
- (3) Language variety, and
- (4) The degree to which intent is focused on the recipient.

Therefore, face-to-face is the richest medium since it provides rich feedback, multiple cues such as intonation, body language, language variety, and a personal focus. The media richness theory predicts that communication will be more effective face-to-face than through other media (Turner, Qvarfordt, Biehl, Golovchinsky and Back, 2010).

With the emergence and massive popularity of new communication media such as social media, the validity of Media Richness Theory is put to the test by many competing theories in recent years. One of the several shortcomings of the theory is that people seem to adapt to the communication media and compensate for signals that a channel cannot carry. As a result, it has been hard to prove that seeing a person's face makes a difference in task performance (Turner, Qvarfordt, Biehl, Golovchinsky and Back, 2010).

The Media Richness Theory is one theory that will hold true because the focus on efficiency has increased over the years. For example, in our society today, people rarely use the phone anymore (a richer media) for quick questions. Instead, there is text messaging. New breed of communication tools such as blackberries have made it possible to send quick emails. Thus, in time, it is predicted that the focus on efficiency will continue to increase and computer mediated communication will be utilized even more often for unequivocal tasks.

Information richness refers to the amount of information that can be conveyed through a communication medium (Poole et al., 1992; Purdy and Nye, 2000). Some researchers assert that communication performance is positively related to the information richness utilized (Dennis and Kinney, 1998; Purdy and Nye, 2000). Others suggest that there is a

positive relationship between communication performance and the information richness of the chosen communication channel fitting the task requirement (Rice, 1992).

### *C. Problem Statement*

Given the statistics, it is safe to say that by now there are more than two million Facebook users in Malaysia. Yet, in the wake of Facebook explosion, organizations in Malaysia find themselves pondering the same question that has been plaguing countless organizations in other countries:

Should we tap into the relationship development potential offered by Facebook and leverage its influence to engage employees?

In April 2006, Facebook allowed organizations to register and as a result, more than 4,000 organizations joined within 2 weeks (Facebook, 2008). But yet currently, about 70 percent of Malaysian organizations ban social networks (The Star, Saturday January 2, 2010).

Therefore, the question above is the very essence of this study. It aims to seek answers to this question in the Malaysian context. Too little attention has been paid to how organizations in Malaysia are using Facebook to cultivate relationships with their stakeholders, in particular, their employees. In addition, this study attempts to close the huge literature gap concerning the influence of Facebook use to increase climate change awareness.

This study seeks to answer the following research questions:

- i) What is the perceived media richness of Facebook?
- ii) What is the climate change awareness level among employees?
- iii) What is the relationship between the perceived media richness of Facebook and the awareness level on climate change among employees?

### *D. Objectives*

The general objective of this study is to determine the influence of Facebook use on climate change awareness among employees. The specific objectives of this study are:

- i) To examine the perceived media richness of Facebook.
- ii) To examine the climate change awareness level among employees.
- iii) To determine the relationship between the perceived media richness of Facebook and the climate change awareness level among employees.

### *E. Methods*

This study was conducted using the quantitative survey method. Such method remains the best known and widely used research method in the social sciences today. A set of questionnaires was used as the instrument for data collection. This study adopted a quantitative method because it provides a way to obtain a better understanding of the mix of communication tools people use as well as the tools' strengths and weaknesses.

The subject of the study is employees who have a Facebook account. Due to time constraint, a small sample of 20 respondents within the Klang Valley was drawn through a purposive snowballing method. Lewis and West (2009) used

a similar method to select respondents who lived in London and who were known to be active Facebook users being approached by one of two students at different universities who were current users of Facebook.

The focus of this study is the influence of Facebook on awareness level on climate change among employees. Shaw et al., (2009) had a similar focus when they studied the influence of media richness on the effectiveness of online Security Awareness program. Using this approach, the independent variable, media richness, is defined as the information carrying capacity of media (in the context of Facebook usage). The dependent variable is climate change awareness.

Descriptive statistics were used such as means, frequency distributions and percentages. Comparison of differences was analyzed using t-test while correlation was analyzed using a simple Pearson's correlation test based on one-to-one basis. All data analyses and tests were done using the Statistical Package for the Social Science (SPSS) for Windows version 16.0.

#### F. Findings and Discussion

The patterns with which the respondents use Internet are indicated in Table 1 to 9. All of the respondents have been using the Internet for more than six years. Over the last year, more than half of the respondents (65.0%) said that their Internet usage has strongly increased, from which, a quarter of them cited a very strong increase. Less than a quarter said that their Internet usage has remained constant and experienced a slight increase. However, only a small portion of the respondents (5.0%) experienced a slight decrease in their Internet usage. No strong or very strong decrease of Internet usage was reported. Data showed that more than half of the respondents (55.0%) spent more than 9 hours a week surfing the Internet. Slightly more than a quarter (30.0%) spent between 5 and 7 hours a week while less than a quarter (15.0%) spent less than 5 hours a week surfing. In terms of Facebook usage, nearly half of the respondents (45.0%) spent 5 to 8 hours a week while less than a quarter of the respondents (15.0%) spent more than 9 hours a week. However, nearly half of them (40.0%) spent less than 5 hours a week on Facebook.

In terms of email usage, nearly half of the respondents (40.0%) said they were almost always online. Only a small portion (10.0%) checked their emails few times a week. Less than a quarter checked their emails daily (15.0%), 2 to 5 times a week (20.0%) and more than 5 times a week (15.0%).

When asked how often Internet replaced watching television, a quarter of the respondents said that it rarely happened. More than a quarter (35.0%) said that Internet replaced watching television from time to time. Another 30.0% said that Internet often replaced watching television. However, only a small portion (5.0%) of the respondents said that Internet always replaced watching television.

Data also showed that nearly half of the respondents (45.0%) that Internet rarely replaced reading while a quarter said that this was the case from time to time. Less than a quarter (20.0%) said that this was often the case. However,

only a small portion of the respondents (10.0%) said that Internet always replaced reading.

On the contrary, nearly half of the respondents (45.0%) said that Internet always replaced doing research in the libraries. More than a quarter (35.0%) said that this was often the case while only a small portion (5.0%) felt that Internet rarely replaced doing research in the libraries.

Finally, when asked whether they searched a topic which they were interested in on the Internet, majority of the respondents (70.0%) said this was always the case. The rest of the respondents said that they often used the Internet to search for a topic.

#### IV. PERCEIVED MEDIA RICHNESS OF FACEBOOK

Table 1 reports that majority of the respondents (85.0%) agree that the Facebook environment helped them to better understand each other. When they disagreed, more than half (60.0%) agree that Facebook communication conditions made it more difficult for them to come to an agreement. Only slightly more than half (55.0%) agreed that Facebook conditions slowed down their communications. Nearly half (45.0%) was not sure whether or not Facebook environment helped them come to a common position following a disagreement. Nearly all (95.0%) agreed that Facebook helped them share their opinions and explained things easily. In addition, majority of the respondents (90.0%) agreed that Facebook environment helped them exchange communications quickly. Majority (75.0%) also believed that there were ideas they could not relate to the other party because of Facebook communication conditions.

Although Media Richness Theory considers many Computer-Mediated Communication (CMC) tools unsuitable for equivocal problem solving, research has also demonstrated that such tools can in fact produce superior and more effective decisions than face-to-face (Valacich et al., 2002). The findings of this study are consistent with such research. Generally, the respondents consider Facebook as a rich medium for effective communication. Positive outcomes when using CMC tools such as reduced delays in information exchange) was also observed in this study. Despite arguments from researchers such as Daft et al. in 1987, this research has demonstrated that communication effectiveness can be increased through non face-to-face environment.

TABLE I. DISTRIBUTION OF RESPONDENTS ACCORDING TO PERCEIVED EFFECTIVENESS OF FACEBOOK

Item (N = 20) Percentage	1	2	3	4	5	Mean	SD
The conditions under which we communicated helped us to better understand each other	0.0				10.0	5.0	75.0
When we disagreed, the communication conditions made it more difficult for us to come to		10.0		3.85		0.75	

an agreement	0.0	25.0	15.0
55.0 5.0	3.40	0.94	
The conditions under which we communicated slowed down our communications		5.0	25.0
15.0 50.0 5.0	3.25	1.07	
When we disagreed, our communication environment helped us come to a common position	0.0	20.0	45.0
35.0 0.0	3.15	0.75	
The conditions under which we communicated helped us share our opinions	0.0	5.0	
0.0 65.0 30.0	4.20	0.70	
I could easily explain things in this environment	0.0	0.0	5.0
80.0 15.0	4.10	0.45	
The communication conditions helped us exchange communications quickly	0.0	5.0	5.0
40.0 50.0	4.35	0.81	
There were ideas I couldn't relate to the other party because of the communication conditions	0.0	10.0	15.0
70.0 5.0	3.70	0.73	

Note: 1 = disagree strongly; 2 = disagree slightly; 3 = neither disagree nor agree; 4 = agree slightly; 5 = agree strongly

#### A. PERCEIVED CLIMATE CHANGE AWARENESS

Table 2 reports that all of the respondents agreed that the world climate is changing and that climate change is the result of human behavior. However, when asked whether climate change is a natural occurrence, only half agreed that it is. Only half of them also felt that climate change has become more of an issue for them in the past year. Majority (85.0%) believed that they could personally help to limit the effects of climate change.

All of them agreed that they understand the presence of an environmental threat and that they comprehend and assess the dangers posed by such environmental threat. More than half of the respondents (75.0%) believed that they have the ability to prevent potential environmental risks from occurring.

The results showed that the participants were generally aware of climate change. This suggested that new media such as Facebook can be used as effectively as conventional face-to-face means to increase employees' awareness about environmental concerns. The findings of this study are also consistent with the global statistics on Facebook usage, which helped explain why more and more people chose it as the preferred medium of communications. Christ (2005) predicted that social networking sites would force public relations practitioners to rethink how they approach relationship development with their stakeholders.

#### Comparison between perceived media richness of Facebook and perceived climate change awareness

The study also examined the influence of Facebook on climate change awareness among employees. Thus, a simple Pearson's correlation test was performed to determine: (1) the direction of relationship on one-to-one basis between the

independent variable and dependent variable of the study and (2) the strength of the relationship.

Pearson's correlation test results revealed that there is a moderate positive correlation between perceived media richness of Facebook ( $r = 0.415$ ,  $p > 0.05$ ) and the perceived climate change awareness among respondents. This relationship is substantial.

TABLE II. DISTRIBUTION OF RESPONDENTS ACCORDING TO PERCEIVED CLIMATE CHANGE AWARENESS

Item (N = 20)	Percentage			Mean	SD
	3	4	5		
The world climate is changing	0.0	0.0	0.0	4.60	0.50
40.0 60.0					
Climate change is the result of human behavior	0.0	0.0	0.0	4.70	0.47
30.0 70.0					
Climate change is a natural occurrence	0.0	20.0		3.35	0.88
30.0 45.0 5.0					
Climate change has become more of an issue for me in the past year	0.0	5.0		3.90	0.97
35.0 25.0 35.0					
I personally can help to limit the effects of climate change	0.0	5.0	10.0	4.15	0.81
50.0 35.0					
I understand the presence or awareness of an environmental threat	0.0	0.0	0.0	4.30	0.47
70.0 30.0					
I comprehend, understand and assess the dangers posed by environmental threat	0.0	0.0	0.0	4.35	0.49
65.0 35.0					
I have the ability to prevent potential environmental risks from occurring	0.0	5.0	30.0	3.85	0.88
40.0 25.0					

Note: 1 = disagree strongly; 2 = disagree slightly; 3 = neither disagree nor agree; 4 = agree slightly; 5 = agree strongly

#### B. CONCLUSION

This study examined the influence of Facebook on climate change awareness among employees. Data showed that there is a strong increase of Internet usage among respondents including prolonged surfing activity and frequent email usage. In addition, the findings also showed that there is a substantial relationship between the perceived media richness of Facebook and the perceived climate change awareness among the participants. Organizations should tap into the relationship development potential offered by Facebook and leverage its influence to engage employees. Therefore, as a recommendation, new media such as Facebook should definitely be used to increase environmental awareness among employees.

There are two main limitations of this study. First, the sample size of this study is very limited. A substantially bigger population sample is therefore recommended for future research as the results and findings would be more representative of the Malaysian employees. Second, this proposed study only examinee the use of Facebook. It did not examine other popular social networking sites, such as Twitter, MySpace, Friendster and Bebo.

The findings of this study could add to the limited literature on the use of Facebook by an organization in Malaysia to engage its employees in environmental awareness program. In addition, this research project joins a body of literature that aims to extend one of the most widely investigated media choice theories: Media Richness Theory (MRT). This study may help to explain that social media tools such as Facebook can be equally if not richer than face-to-face meetings due to other dimensions not considered in the original study such as motivation and ability to process information. From practical point of view, this study may contribute to the formation of policy on climate change for the communication and multimedia industry.

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