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Research Article

Perception on Knowledge-sharing Activities among Industrial Technology Students in a Public Higher Education Institution

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Abstract: The purpose of this study was to investigate the perception of undergraduate students in a public higher education institution on knowledge-sharing, their preferred mode of sharing knowledge and the barriers associated with it. Students enrolled in the bachelor's degree program of Industrial Technology in a public educational institution were used as respondents and were classified according to gender, academic year level and scholastic status. Results indicated that face-to-face communication or direct interaction is the most preferred mode of sharing knowledge among the respondents, while sending text messages or Short Message Service (SMS) is the least preferred mode. The respondents had a very favorable perception towards knowledge-sharing when taken as a whole and when grouped according to the different variables. No significant differences in the perception on knowledge-sharing among the different categories were observed. Gender, academic year level as well as scholastic status were not associated with the degree of perception on knowledge-sharing. The respondents believed that the lack of information to share is the factor that will most likely prevent them from engaging in knowledge sharing activities, whereas being ashamed to share opinions or ideas is least likely to be the reason of preventing them from sharing knowledge.

Keywords: Higher education, industrial technology, knowledge sharing, perception

INTRODUCTION

Knowledge-sharing is a crucial unit of the Knowledge Management (KM) system in an organization (Sohail and Daud, 2009). The objective of KM is to "ensure that the right knowledge is available to the right processors, in the right representations and at the right times as well as for performing their knowledge activities at a right cost" (Holsapple and Joshi, 2003). When individuals provide part of their knowledge to others through direct or indirect means, they are participating in knowledge sharing (Bartol and Srivastava, 2002). This activity ensures that knowledge is available and delivered at a reasonable span of time.

According to Fengjie *et al*. (2004), sharing of knowledge is the major component of knowledge management. Choi and Lee (2003) stressed that knowledge-sharing is a factor to obtain and maintain a competitive advantage and improve business performance, while Willett (2002) mentioned it as a non-neutral exchange of information that influences the distribution of power and changes how individuals identify their responsibilities. Ultimately, Lee *et al*. (2000) defined knowledge-sharing as activities of transferring or disseminating knowledge from one person, group or organization to another.

Knowledge-sharing is aimed to do something useful with knowledge. Improving knowledge-sharing is carried out in two dimensions. One dimension is managing the existing knowledge including the development of knowledge repositories such as memos, reports, articles and reports and knowledge compilation. Another dimension is managing knowledge-specific activities including knowledge acquisitions, creation, distribution, communication, sharing and application (Stenmark, 2001).

According to Kamal *et al*. (2007), sharing of knowledge is essential in knowledge-based organizations such as Higher Education Institutions (HEIs) due to the fact that most of the people involved are knowledge workers, particularly the students and teachers. Instead of creating new patterns of knowledge management, it is better to acknowledge the existing KM in these educational institutions for further progress. The academic staff is also required to recognize and respond to their changing role in a knowledge-based society (Yang and Ismail, 2008).

Maponya (2004) stressed that knowledge management as it included in the business sector is becoming more acceptable in the academic sector. After all, knowledge invented through research and teaching in universities should be relevant to the labor market. The educational institutions are associated with the preservation of knowledge and ideas through these processes; teaching, research, publication, extension and services and interpretation (Ratcliffe-Martin *et al*.,

2000). As a result, knowledge should be promoted as a business in schools and should remain as the focus of higher education institutions. Gupta *et al*. (2000) pointed out that since many organizations are facing the tough competition, they begin to realize that there is a huge and largely untapped asset diffused around in the organization. In the present situation, knowledge is the most crucial asset of any organization particularly for the higher education institutions (Abdullah *et al*., 2008; Ruzaif and Shahizan, 2008; Sharimllah *et al*., 2007, 2008). Haas (2006) argued that even though researchers have increased awareness of knowledge sharing in organizations over the years, moderately little research has focused on this particular aspect in higher education institutions. Hence, this study will determine how the undergraduate students perceive knowledge-sharing activities in a public higher education institution and to gather information on the likely barriers to these activities in the academic institution. More specifically, this study determined the levels of perception on knowledge-sharing among undergraduate students in industrial technology at a public institution of higher learning in the Philippines and the different variables including gender, year level and scholastic standing that may be associated with such perception. Moreover, the students' preferences on the mode and the perceived barriers to knowledge-sharing are determined.

MATERIALS AND METHODS

Respondents: The study was conducted in February 2012 at the Western Visayas College of Science and Technology, a public institution of higher education located in Central Philippines. The subjects were the undergraduate students currently enrolled in the Bachelor of Science in Industrial Technology (B.S.I.T.) program. Random sampling was done to determine the respondents of the study. A total of one-hundred respondents (100) were included in the study.

Data-gathering: The study is a descriptive research that aimed to determine the perception on knowledge-sharing activities among undergraduate students in industrial technology at a public higher education institution. The instrument that was used to gather data was a Knowledge sharing questionnaire that was designed and previously validated by Hussein and Nassuora (2011). The questionnaire was composed of three parts. Part 1 asked the respondent to provide personal details such as gender, year level and scholastic status. It also asked the respondent to provide information on the most and least preferred mode of knowledge sharing. Part 2 requested the respondents to provide their rating on questions pertaining to knowledge-sharing activities. They rated their response on a particular question based on a scale of 0-100. Part 3 asked the students to provide responses on what they perceived to be barriers to knowledge-sharing activities.

Table 1: Profile of the respondents used in the study

Variable	Frequency	%
Gender		
Male	94	94.00
Female	6	6.00
Year level		
1st year	25	25.00
2nd year	24	24.00
3rd year	33	33.00
4th year	18	18.00
Scholastic standing		
Low	16	16.00
Average	60	60.00
High	24	24.00

N = 100

Data analyses: The respondents were categorized into the different variables including gender (Male or Female), academic year level (First year, Second Year, Third Year and Fourth year) and scholastic status (High: grade point average, GPA of 1.0-1.75; Average: GPA of 1.76-2.5; and Low: GPA of >2.5). The students' perception on knowledge-sharing was expressed in percentage and classified either as Very Unfavorable (0-20), Unfavorable (21-40), Neutral (41-60), Favorable (61-80) and Very Favorable (81-100).

Descriptive profile of the respondents and the degree of perception on knowledge-sharing were determined by obtaining the means, standard error of the mean and percentage. Significant differences among variables tested using two tailed t-test (gender) and Analysis of Variance (ANOVA) (for academic year level and scholastic status). Correlation analysis was used to establish the relationship between the different variables of the study and the degree of perception on knowledge- sharing. The modes of knowledge-sharing among the respondents and the barriers associated with it were ranked based on the frequency. Statistical tests were all done at the 0.05 level of significance.

RESULTS AND DISCUSSION

The profile of the respondents in the study is shown in Table 1. Majority of the respondents were males (94%) and had average scholastic status (GPA of 1.76-2.5; 60%). In addition, most of those surveyed are in their third year of study (33%).

As presented in Table 2, when the respondents were taken as a whole group, their most preferred mode of knowledge-sharing is through face-to-face communication or direct interaction (92%). The least preferred mode is through the use of SMS or text messaging (36%). When categorized according to gender, both the males (91.5%) and females (100%) preferred face-to-face communication. As to the least preferred mode of knowledge-sharing, the males chose the use of SMS (36.2%) while the females chose both the use of SMS and phone (33.3%). Regardless of the academic year level, majority of the respondents preferred the use of face-to-face communication when sharing knowledge. However, in terms of the least

Table 2: Preferred mode of knowledge-sharing among the respondents in the study

Variable	Most preferred mode (%)	Least preferred mode (%)
Whole group	Face-to-face communication (92.0)	Uses of SMS (36.0)
Gender		
Male	Face-to-face communication (91.5)	Uses of SMS (36.2)
Female	Face-to-face communication (100.0)	Uses of SMS phone (33.3)
Year level		
1st year	Face-to-face communication (96.0)	Use of e-mail (28.0)
2nd year	Face-to-face communication (79.2)	Uses of SMS (37.5)
3rd year	Face-to-face communication (93.9)	Uses of SMS (42.4)
4th year	Face-to-face communication (100.0)	Uses of SMS (33.3)
Scholastic standing		
Low	Face-to-face communication (87.5)	Use of e-mail (56.3)
Average	Face-to-face communication (93.3)	Uses of SMS (35.0)
High	Face-to-face communication (91.7)	Uses of SMS (41.7)

N = 100

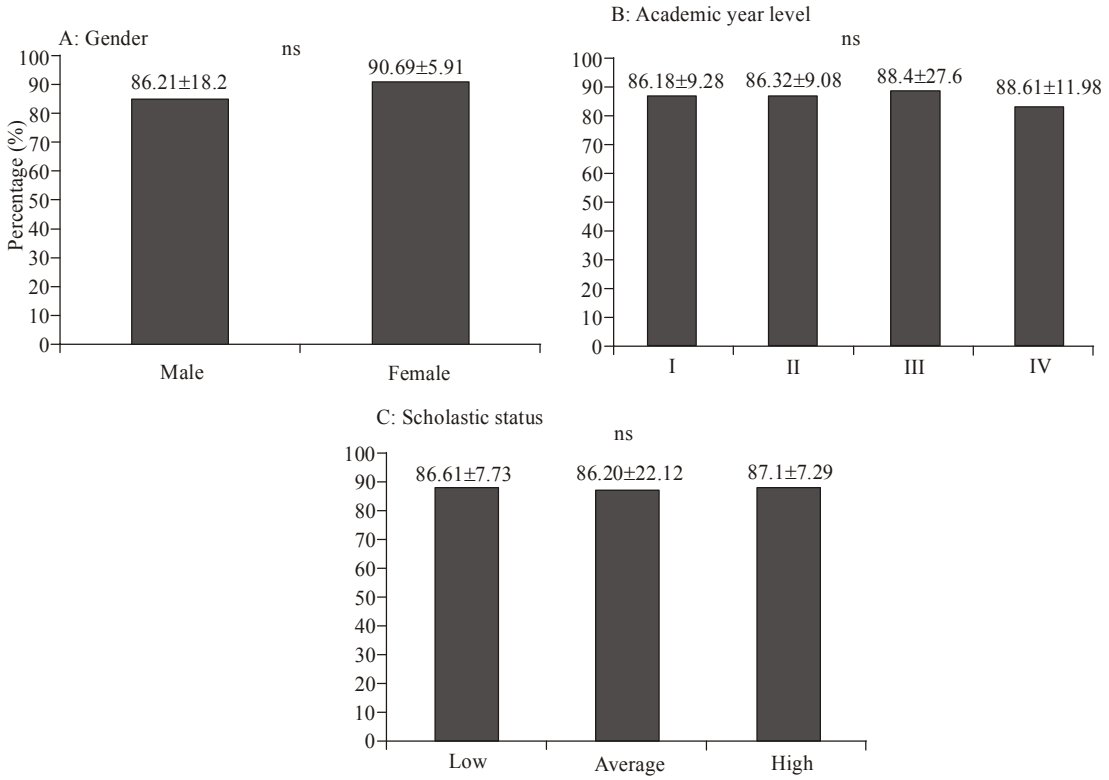

Fig. 1: Perception (expressed as percentage) of the students on knowledge-sharing activities. A total of 100 respondents were used for the study, ns indicates not significantly different at $p>0.05$

preferred mode of knowledge-sharing, the use of SMS was chosen by most of the Second to Fourth year students, while the use of e-mails was chosen by most of the First year students. Majority of the students regardless of their scholastic status had chosen face-to-face communication as the most preferred mode of knowledge-sharing. On the other hand, most of the respondents who had average or high scholastic status chose the use of SMS as the least preferred mode of knowledge-sharing, whereas majority (56.3%) of the respondents who had low scholastic status preferred the use of e-mails.

In general, the respondents perceived knowledge-sharing activities as "Very Favorable" (86.5%±17.7).

Table 3: Correlation of the different variables with perception on knowledge-sharing

Variable	Coefficient of correlation (r)	Significance
Gender	0.061	Not significant
Year level	-0.014	Not significant
Scholastic status	0.011	Not significant

Moreover, when categorized into the different variables the same levels of perception were noted and not significantly different according to gender (Fig. 1a), academic year level (Fig. 1b) and scholastic status (Fig. 1C). Correlation analysis also revealed no significant relationship between the different variables (gender, academic year level and scholastic status) and the level

Table 4: Respondents' view on the different factors that inhibit knowledge-sharing activities

Variable	Greatest barrier (%)	Least barrier (%)
Whole group	Lack of information to share (31.0)	Ashamed of sharing opinion (42.0)
Gender		
Male	Lack of information to share (31.9)	Ashamed of sharing opinion (40.4)
Female	Afraid of providing wrong information (33.3)	Ashamed of sharing opinion (66.7)
Year level		
1st year	Lack of information to share (32.0)	Ashamed of sharing opinion (36.0)
2nd year	Lack of information to share (29.2)	Ashamed of sharing opinion (41.7)
3rd year	Lack of information to share (27.3)	Ashamed of sharing opinion (48.5)
4th year	Lack of information to share (38.9)	Ashamed of sharing opinion (38.9)
Scholastic standing		
Low	Lack of trust (25.0)	Ashamed of sharing opinion (25.0)
Average	Lack of information to share (31.7)	Ashamed of sharing opinion (46.7)
High	Lack of information to share (37.5)	Ashamed of sharing opinion (41.7)

N = 100

of perception on knowledge-sharing activities (Table 3).

Table 4 shows the respondents' views on the different barriers to knowledge sharing. When grouped as a whole, most of the respondents (31%) viewed that the lack of information to share is the factor will most likely prevent them from engaging in knowledge-sharing activities, while most of the believed that being ashamed of saying opinions or ideas (42%) is least likely to inhibit them from knowledge-sharing activities. When grouped according to gender, most of the males viewed the lack of information (31.9%) and the females viewed as being afraid to provide the wrong information (33.3%) as the factor that will most likely prevent them from participating in knowledge-sharing activities. However, both of the viewed that being ashamed to say opinions or ideas is the factor that will least inhibit them from knowledge-sharing activities. Regardless of the academic year level, the lack of information to share is viewed as the factor that will most likely inhibit them from engaging in knowledge-sharing, while being ashamed of saying opinions or ideas is least likely to prevent them from participating in sharing knowledge to others. When categorized according to scholastic status, the respondents having average and high academic standing viewed that the lack of information to share is the factor which would most likely prevent them from knowledge-sharing activities, while those who have low academic standing believed that the lack of trust will most likely inhibit them from sharing knowledge to others. Regardless of their academic standing, the respondents viewed that being ashamed to share or say opinion is the factor that is least likely to prevent them from knowledge-sharing.

In the present study it was demonstrated that Industrial Technology as a course is still gender-biased, with more males taking this course than females. As such, there should be intensive campaign in re-directing the public perception that this course could also be suitable for women. Schools that offer this course must redesign the curriculum in such a way that it will be appealing for women to enroll in this degree.

The respondents had a very favorable perception towards knowledge-sharing activities and this was in agreement with a previous study done in an institution of higher education involving undergraduate students taking various fields of study (Hussein and Nassuora, 2011). The positive response towards knowledge sharing could be attributed to the notion that knowledge represents a resource that has a value (Davenport and Prusack, 1998). If individuals share their knowledge they might receive both extrinsic and intrinsic rewards (Bock *et al*., 2005; Burgess, 2005; Lin, 2007). However, the results also demonstrated that there was no significant relationship between the respondents' perception of knowledge-sharing and the variables namely, gender, academic year level and scholastic status. This indicates that other factors could contribute in the desire of the individual to share knowledge. Swift *et al*. (2010) stressed that motivation plays a role in the tendency of an individual to engage in knowledge sharing. Also, other variables need to be tested in further studies to find out which among these are related as to how students perceive toward participating in knowledge sharing.

Face-to-face communication or direct interaction was the preferred mode of knowledge-sharing among the respondents. Hussein and Nassuora (2011) also obtained similar results. Through direct interaction, the sharing of knowledge is articulated better and easily codified (Swift *et al*., 2010), hence, there is less effort in transferring knowledge to the recipients. Studies have shown that technology tools have aided acquisition of knowledge (Chiou *et al*., 2010; Hwang and Chang, 2011a; Hwang *et al*., 2011b). However, the use of electronic devices or the internet to share knowledge has some limitations particularly on the availability and the cost; thus, the use of these including SMS, e-mails and phones was the least preferred method of sharing knowledge.

Among the factors that are considered as barriers to knowledge sharing, the respondents generally viewed the lack of information to share as the reason that is most likely to prevent them from sharing knowledge to others. On the other hand, Hussein and Nassuora (2011) found that among undergraduate students in a university in Jordan, the respondents viewed the lack of

time to share knowledge as the major constraint in knowledge sharing. These differences could be attributed to cultural differences or could be related to the amount of knowledge or information that the students obtained in the classroom. For example, if the students do not get sufficient knowledge in the class then they would consider the lack of information to share as the major constraint in knowledge sharing. On the other hand, if the students are spending too much time in the classroom, they would regard the lack of time to share information as the major barrier in knowledge-sharing. Additional studies are needed to firmly establish the constraints in knowledge sharing, so that the teachers and the heads of educational institutions could formulate policies toward lessening these constraints on the sharing of knowledge. Also, the respondents in the present study viewed that being ashamed of sharing information was the least constraint in sharing knowledge. In contrast with the findings of Hussein and Nassuora (2011), where they showed that the lack of knowledge-sharing culture was the least of the problems that hinder knowledge-sharing. Our results tend to indicate that the students are free to articulate themselves; thus, facilitating the transfer of knowledge in a spontaneously.

In conclusion, this study has shown that knowledge sharing is a crucial part on knowledge management in higher education institutions and that effective knowledge sharing among students is necessary in the formulation of efficient pedagogical practices as well sound policies in these educational institutions. Generally, the students had very favorable perception towards knowledge-sharing. However, they should be made to realize the importance of knowledge sharing and the advantages it offers towards acquisition of knowledge. Since this study was limited in scope, future studies involving larger sample size in terms of the number of educational institutions and the number of respondents should be done. The use of focus group discussions is also encouraged to solicit individual reactions from the students.

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