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Knowledge Sharing Idiosyncrasies of University Students in Ghana

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Abstract. This study explored the factors affecting knowledge sharing behaviour of students in a higher institution of learning. Using a model derived from the Social Cognitive Theory and the Theory of Reason Action, six hypotheses were tested from a cross-sectional data collected from 371 undergraduate students on a 4-year degree programme in the University of Ghana. Five out of the six hypotheses were supported. The results showed that the knowledge sharing behaviour (KSB) of the students was significantly related to five of the human and environmental factors ($F=639.9$, $df=5, 290$, $p<0.05$) with a co-efficient of variation of $R^2=0.917$ (91.7%). The knowledge sharing behavior of the students was, however, not significantly dependent on their personal characteristics. The study makes a case for increased attention in understanding the human and environmental factors of knowledge sharing since knowledge sharing is largely a people activity shaped by culture.

Keywords: Knowledge sharing, Knowledge sharing behavior, Ghana university, Students, Human factors, Environmental factors.

1 Introduction

Knowledge sharing and learning from each other is part of human life and have been in existence since the beginning of social and community life [1]. Knowledge sharing behaviour is an important component of knowledge management activities, whether in individual or organizational learning [2]. Knowledge cannot be extricated from an individual's ego and occupational meanings; it is woven to people's egos and competitiveness in their occupations and therefore does not flow simply from the knowledge holder to others [3]. Knowledge sharing behaviours and barriers are not limited to organizations alone students also show such tendencies [4]. Over the years scholars have tried to ascertain knowledge sharing behaviour at the organisational level [5] and at the individual level [6]. In the academia, some studies exist. According to Modh et al. [7] found that students were motivated by the need to learn from others and caring for each other to share their knowledge. Again, Isika et al. [8] reported that the motivating factors for knowledge sharing among students differ from

what is found in the corporate world, due to the difference in goals of students. In many instances, students “store” their knowledge and feel reluctant to share because they perceive it to be their personal possession and also as power [9]. More to these points, the lack of in-depth bond between the source and destination of knowledge [10], willingness to share [11], lack of motivation to share and lack of knowledge sharing culture in the learning environment [12] affect knowledge sharing among students.

Additionally, some studies have employed different theories to explain the knowledge sharing behaviour of individuals in organizations. For example, Endres et al. [13] used self-efficacy theory; [14] used Social exchange theory whilst [15] integrated social capital theory and social cognitive theory to understand knowledge sharing. Also, Chow and Chan [5] integrated social capital theory with Theory of Reason Action to whilst other scholars have proposed integration of social cognitive theory and social exchange theory to study knowledge sharing behaviour [16]. This study, however, tries to integrate the Social Cognitive theory and Theory of Reason Action to ascertain knowledge sharing behaviour of undergraduate students of the University of Ghana. This will help compliment the weakness of one model with the strength of the other and also help to adequately discuss from the human and environment factors perspectives.

A cursory look into the knowledge management literature shows a paucity of literature on knowledge sharing behaviour among students in higher education in Sub-Saharan Africa although globally a lot of studies exist ([4], [24], [27], [28]). This is particular so in Ghana, where knowledge sharing behaviour among students in universities is virtually non-existing ([17], [18], [19]). Although considerable studies have been done on knowledge management in Ghanaian context ([17]; [18], [19]), these studies do not consider knowledge sharing behaviour of students in higher institutions of learning. Again looking at the structural and cultural disparities between Ghanaian universities and those other countries and the universities in the aforementioned countries where similar studies have been conducted, this study is justified from a developing country context. The rest of the paper is divided into four parts. Part one focuses on reviewing relevant literature while part two discusses the methodology employed. Part three focuses on results and discussion of findings and the last part contains the conclusions.

2 Background

2.1 Cognition and Reason

The literature covers three themes, namely the Social Cognitive theory, Theory of Reason Action and knowledge sharing, knowledge sharing among students and factors affecting knowledge sharing.

The Social cognitive theory adopted for this study posits that individual behaviour is not static, but reciprocal or interactive network of personal factors, behaviour and context dependent [20]. The model of reciprocal causation, posits that behaviour, cognition and other personal factors, and environmental effects operate as interacting

effects that affect each other bi-conditionally [21]. Social cognitive theory has been linked with the model of causation consisting of triadic reciprocal determinism. The theory of reasoned action, a principal factor in the theory of planned behaviour is the individual's intention to act in a given manner [22]. According to the theory, the proximal determinants of behaviour are intentions to engage in the behaviour and perceived behavioural control over the behaviour. The environment may denote the students, faculty members, policies and other objects within the institution. By inference it can be argued that students may share their knowledge when the academic environment encourages collaborative learning and social networking.

Several scholars have described the knowledge sharing process as the processes through which people be it individuals, group or organization mutually exchange knowledge and jointly create new knowledge ([23], [4]). Knowledge sharing is one of the most important aspects of knowledge management. The subject has become topical in recent times among people in organizations; teachers and students in universities as well as schools; and even among countries [7]. Knowledge sharing among students is the focus of this study, particularly as academic environments are considered knowledge intensive settings.

The extant literature provides broad evidence of knowledge sharing in academic environments ([24]; [25]). Some scholars have provided evidence of factors affecting knowledge sharing behaviour of students. Also, Schrader [26] found that the main reason why students share their knowledge is to solve their problems. In a related study, Zia-ur-Rehman et al. [27] noted that factors such as perceptions about knowledge sharing, trust and lack of knowledge to share [28], willingness to share and ability to share, instructor support and technology factors affect knowledge sharing among students [29].

According to Yuen and Majid [4], students share their knowledge because their colleagues would benefit from them. Nonetheless, some students equate knowledge to power, and source of competitive advantage and therefore are reluctant to share their knowledge [30]. Students are not willing to share knowledge for academic activities that were graded [4]. Furthermore, lack of mutual bond or relationship among students [10], lack of motivation or rewards to share [4]; lack of time [31] and non-existence of knowledge sharing culture in the learning environment [12] have been noted as the barriers to knowledge sharing among students.

Some scholars have also tried to investigate the mode of communication of knowledge among students. For example, Yuen and Majid [4] and Caipang [28] both found that face-to-face communication is the most preferred channel for most students to share knowledge, followed by online chat, email, and telephone, with the online message board or Short Message Service (SMS) being least preferred.

2.2 Factors Affecting Knowledge Sharing

It has been observed in the literature so far that for people who are willing to share their knowledge, the norm of reciprocity is important-they expect others to contribute as well [32]. Among the myriad of factors that facilitate or impede knowledge sharing, prior research has consistently identified culture as one of the most important [33]. The literature has also established lack of time, lack of social network,

education, fear of loss of ownership, among others as barriers to effective [34]. Technology also plays a role in stimulating a positive knowledge sharing culture [35]. Perception affects knowledge sharing [36] and institutions that provide an environment that supports a positive perception are more likely to influence students or faculty members to share their knowledge [14].

Another factor that has been established in the literature as limiting knowledge sharing is the issue of kind of knowledge. Tacit knowledge essentially resides in the minds of the knower and it is therefore almost impossible for tacit knowledge to be shared without the active participation and cooperation of the knower ([37], [38]). Apart from the type of knowledge, various dimensions of the human factor also affect knowledge sharing. The active participation of the people involved in the knowledge sharing activities hinges on confidence, teamwork, interpersonal skills and ultimately self-esteem. Some people may have the feeling that the recipient of their knowledge will misuse it, and also the knowledge being shared might not be accurate and credible [39]. The attitude [29] and motivation [4] factors as well as personal characteristics of the person involved in the knowledge sharing are also noted.

Personal characteristics of individuals such as gender and age, education among others are likely to be factors that motivate knowledge sharing were viable predictors [36]. For example, Senge [9] in his study noted that factors such as age, race, faculties, and nationality have significant impact on knowledge sharing in a higher learning institution. Also, Ojha [40] found a relationship between group compatibility and knowledge sharing. The more compatible a person was with the group in terms of age, gender and other factors, the more likely he or she was to practice knowledge sharing; and conversely individuals who perceive themselves in a minority (e.g., gender, marital status, education, etc.) are less likely to participate in knowledge sharing.

A critical look at the theories and the literature reviewed for the study point to knowledge sharing as being a human activity within a defined environment or culture as shown in the proposed model in Fig. 1.

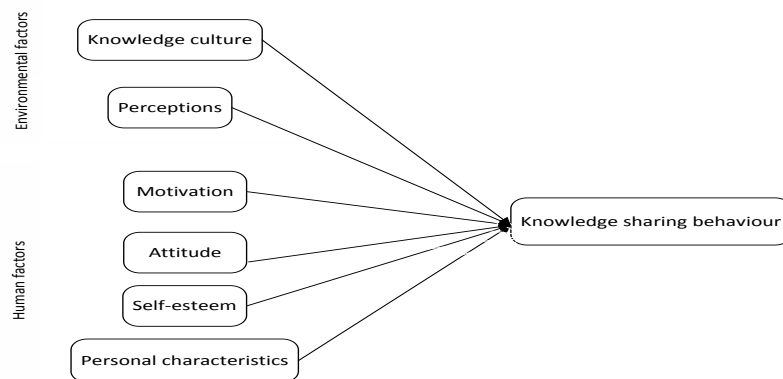


Fig. 1: Human-Environmental Model of Knowledge Sharing

The human factors were derived largely from the Social Cognitive Theory whilst the environmental factors were derived from the Theory of Reasoned Action together with extant literature. Based on this model, we have developed the following hypotheses which will be tested in this study:

H1: Knowledge sharing influences knowledge sharing behaviour

H2: Perceived limiting factors affect knowledge sharing

H3: Motivation influences knowledge sharing

H4: Self-esteem affects knowledge sharing behaviour

H5: Attitude influences knowledge sharing behaviour

H6: Personal characteristics influences knowledge sharing behaviour

3 Methodology

This study employed the exploratory approach where previous studies on knowledge sharing behaviour were reviewed to identify variables that formed the basis of the proposed model used for the study. Twenty variables were arrived at from the reviews, which were subsequently grouped into two main factors for environmental namely knowledge sharing culture and perception of knowledge sharing; and the human factors namely motivation, self-esteem and attitude. Five of the questions measured motivation, 3 questions each measured self-esteem, culture and perception, and 6 questions were for attitude. The number of questions used in measuring each variable was informed by the need for questions and counter questions on the same issues in order to ensure consistency in the responses and enhance the reliability of the measures. This was also informed by the decision to make for easy and simplistic aggregation of the scores which sums up to 100 (maximum score of 5 * 20 questions). The twenty variables formed the basis of the questions that were designed on a Likert scale questionnaires for the study. The questionnaire was then administered to a randomly selected cluster of students at lecture sessions. In all 371 undergraduate students of the University of Ghana participated in the study. The students were required to indicate the extent to which the questions applied to them on a scale of 1-5, where 1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree. Data was also collected on the personal characteristics of the students. The summated scale was used to arrive at the average scores for both the independent and the dependent variables. The reliability test for the pilot study gave a high Cronbach Alpha of 0.71 for the 20-item Likert-scale used in measuring the knowledge sharing behaviour. Descriptive and inferential statistics were used and analytical tools namely regression, correlation, ANOVA and t-test were used to test the hypotheses for the study at the 95% significance level.

4 Results and Discussion

The researchers tested six hypotheses on the relationship between knowledge sharing behaviour and the independent variable namely knowledge sharing culture, motivation, self-esteem, attitude and perception and personal characteristics. A look at

the background of the students showed that they were made of 51.5% males and 48.5% females in their 1st (3.5%), 2nd (50.6%), 3rd (25.6%) and 4th (20.3%) years on the 4-year undergraduate programmes at the University of Ghana. The students ranged in age between 18-36 years with a mode of 20 years, median of 21.0 years and mean of 21.8 years. Their programme composition was BA (58.3%), BSc (41.0%) and the BFA (0.6%). The majority (70.9%) were resident on campus whilst 29.1% were non-resident students. The proportion of Ghanaians to foreigners was 97% to 3% for the sample drawn for the study. The students were from four main faculties namely Arts (20.3%), Business (41.5%), Science (0.9%) and Social Sciences (37.3%). The study found no significant differences in the knowledge sharing behaviour of the students with respect to any of these personal characteristics ($p > 0.05$). Therefore hypothesis H6 was not supported; that is the knowledge sharing behaviour of the students was not significantly dependent on their personal characteristics.

The data for the study revealed a significant relationship between knowledge sharing behaviour and the independent variables ($F=639.9$, $df=5, 290$; $p < 0.05$) (Table 1). This shows that the regression model was robust in establishing the relationship between the dependent (knowledge sharing behaviour) and the independent variables.

Table 1: ANOVA Test of the Regression Model for the Factors of Knowledge Sharing Behaviour

Model ^b	Sum of Squares	df	Mean Square	F	Sig.
Regression	11892.560	5	2378.51	639.87	.000 ^a
Residual	1077.977	290	3.72		
Total	12970.537	295			

a. Predictors: (Constant), P, MOT, ATT, KSC, SE;

b. Dependent Variable: KSB

The regression co-efficient obtained was $R=0.958$, $R^2 = 0.917$. Thus the strength of the relationship between the knowledge sharing behaviour and the independent variables was (95.8%) and as much as 91.7% of the knowledge sharing behaviour of the students can be explained by changes in the independent variables considered in this study.

All the five independent factors yielded positive co-efficients which were all significant in establishing a regression model for the knowledge sharing behaviour and the independent factors ($p < 0.05$).

Table 2: Regression Coefficients for the Factors of Knowledge Sharing Behaviour

Model ^a	Coefficients		t	Sig.
	B	Std. Error		
(Constant)	14.160	1.067	13.28	.000
Attitude (ATT)	1.014	.077	13.18	.000
Motivation (MOT)	1.240	.061	20.21	.000
Self-esteem (SE)	.931	.055	16.90	.000
Knowledge Culture (KC)	1.031	.058	17.84	.000
Perception (P)	1.031	.055	18.76	.000

a. Dependent Variable: KSB

The regression model as per the results in Table 2 can thus be expressed as:

$$KSB = 14.16 + 1.01(ATT) + 1.24(MOT) + 0.93(SE) + 1.03(KSC) + 1.03(P) \quad (1)$$

The results in Table 3 show that the perceptions of the students about knowledge sharing correlated strongest and positively with their knowledge sharing behaviour (0.642), followed by self-esteem (0.626), knowledge sharing culture (0.572), motivation (0.495), and attitude (0.495) which correlated least with their knowledge sharing behaviour, albeit positively and significantly at the 0.05 level.

Table 3: Correlation Matrix for the Factors of Knowledge Sharing Behaviour

Knowledge sharing factors		ATT	MOT	SE	P	KC
KSB	R	.495**	.548**	.626**	.642**	.572**
	p-value	.000	.000	.000	.000	.000
	N	296	296	296	296	296
ATT	R		.186**	.180**	.156**	.120*
	p-value		.001	.001	.004	.027
	N		337	349	343	342
MOT	R			.200**	.141*	.050
	p-value			.000	.010	.364
	N			336	330	331
SE	R				.333**	.229**
	p-value				.000	.000
	N				345	341
P	R					.313**
	p-value					.000
	N					336

*. Correlation is significant at the 0.05 level (2-tailed);

** . Correlation is significant at the 0.01 level (2-tailed).

Thus hypotheses H1, H2, H3, H4 and H5 were supported by the data for the study (Tables 2 and 3) but hypothesis 6 was not supported since the knowledge sharing behaviour of the students was not significantly ($p > 0.05$) dependent on the personal characteristics of the students (gender, age, and nationality).

The students tended to share more tacit (51.7%) than explicit (49.3%) knowledge. The direction of the knowledge sharing activities of the students was one of reciprocal tendencies (89.3%) with a focus on views of others they have learnt (46.7%) rather than on common views (37.5%) or an emphasis on their own views (15.8%). The students desire to share knowledge with their peers was most challenged by lack of time (49.9%) and least affected by perceived high cost of sharing knowledge (5.1%).

Technology has been described as an enabler of knowledge sharing, providing enhanced tools for general knowledge management activities and a platform, particularly for knowledge sharing. The study found that most of the students indicated face-to-face (59.0%), followed by WhatsApp (26.3%) and mobile phone (8.0%) as their most preferred medium for knowledge sharing whilst the least used medium was SMS (3.5%).

5 Conclusions

The study set out to explore the factors that affect the knowledge sharing behaviour of students in a higher institution of learning. The study revealed a significant relationship between the knowledge sharing behaviour of the students and both the environmental or cultural factors and the human factors of attitude, motivation and self-esteem with an explainable variation of 91.7%. Whilst acknowledging that knowledge sharing is an obvious activity in academic environment like the university, students' knowledge sharing behaviour especially among themselves is a very important aspect of university training in the area of teamwork, interpersonal skills and developing self-confidence for academic, social and future work life adjustments. The findings are evident of the Social Cognitive theory and Theory of Reason Action from which the proposed human-environmental factors of knowledge sharing model have been developed. The study makes significant contribution to the essence of informatics by trying to explore the interactions between human and information systems. The study is suggestive of the fact that the internal human dynamics of attitude, self-esteem and motivation within the constraints of perceived limiting factors and the context of pervasive environmental or cultural factors to a large extent influence the knowledge sharing behaviour of students.

The study recommends that university management should promote activities that help students to develop positive attitude, high self-esteem and motivation, coupled with positive perceptions whilst creating a knowledge sharing culture in the university environment. The study is, however, exploratory, therefore the proposed model need to be tested within different settings and with robust data in order to make generalizations. Also, it would be important to undertake series of test of reliability of the variables adopted for the study or at best adopt more standardised instruments for measuring the human factors from the domain of Psychology in order to enhance the validity and reliability of the data and results across different cultures. The authors also acknowledge the difficulty in defining what knowledge is; and knowledge as used in the context of this study was generic knowledge rather than specific knowledge. In effect the responses only represent what the students understood and perceived as knowledge. These do not in any way affect the findings of the study. The study makes a case for further research on understanding the human factors of knowledge sharing within defined cultures since knowledge sharing is primarily a human driven activity.

References

1. Malafsky, G.P.: Technology for Acquiring and Sharing Knowledge Assets. In: Holsapple, C.W. (ed.): Handbook on Knowledge Management 2: Knowledge Directions. Springer, Berlin Heidelberg (2003) 85-107
2. Nonaka, I.: A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*. 5(1) (1994) 14-37
3. Davenport, T.H., De Long, D.W., Beers, M.C.: Successful knowledge management projects. *Sloan Management Review*. 39(2) (1998) 43-57

4. Yuen, T.J., Majid, M.S.: Knowledge-sharing patterns of undergraduate students in Singapore. *Library Review*. 56(6) (2007) 485-494
5. Chow, WS, Chan LS. Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management* 45(7) (2008) 458-465
6. Haas, M.R., Hansen, M.T.: When using knowledge can hurt performance: the value of organizational capabilities in a management consulting company. *Strategic Management Journal*. 26(1) (2005) 1-24
7. Mohd, S.N.H., Goh, G.G.G., Fathi, N.M.: Factors Affecting Motivations to Share Knowledge among University Students. *International Conference on Management, Economics and Finance (ICMEF 2012) Proceeding*, (2012) 693-703
8. Isika, E., Ismail, M.A., Khan, A.F.: Knowledge sharing behaviour of postgraduate students in University of Malaya. *The Electronic Library*. 31(6) (2013) 713-726
9. Senge, P.: Sharing knowledge. *Executive Excellence*. 14 (1997) 1-3
10. Cross, R., Baird, L.: Technology is not enough: Improving performance by building organizational memory. *Sloan Management Review*. 41(3) (2000) 69–79
11. Liyanage, C., Elhag, T., Ballal, T., Li, Q.: Knowledge communication and translation: A knowledge transfer model. *Journal of Knowledge Management* 13(3) (2009) 118–131
12. Syed-Ikhsan, S.O.S., Rowland, F.: Benchmarking knowledge management in a public organisation in Malaysia. *Benchmarking: An International Journal*. 11(3) (2004) 238-266
13. Endres, M., Endres, S., Chowdhury, S., Alam, I.: Tacit Knowledge Sharing, Self-Efficacy Theory and Application to the Open Source Community. *Journal of Knowledge Management*. 11 (3) (2007) 92-103
14. Liang, P., Jansen, A., Avgeriou, P.: Selecting a high-quality central model for sharing architectural knowledge. In: *Proceedings of the 8th International Conference on Quality Software (QSIC)*. IEEE Computer Society (2008) 357–365
15. Chiu, C.M., Hsu, M.H., Wang, E.T.G.: Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*. 42(3) (2006) 1872-1888
16. Okyere-Kwakye, E, Nor, K.M.: Individual factors and knowledge sharing. *Journal of Economic and Business Administration*. 3(5) (2011) 66-72. Retrieved from <http://thescipub.com/pdf/10.3844/ajebasp.2011.66.72>
17. Narteh, B.: Knowledge transfer in developed-developing country inter-firm collaborations: a conceptual framework. *Journal of Knowledge Management*. 12 (1) (2008) 78-91
18. Narteh, B.: Knowledge transfer and performance in Danish-Ghanaian strategic alliances. *International Journal of Knowledge Management Studies*. 4(2) (2010) 198-215
19. Boateng, H.: Knowledge transfer from academia to industry: A study of Ghanaian graduate students. Unpublished Masters Thesis University of Ghana, Legon (2012)
20. Bandura, A.: Social Cognitive Theory, In Vasta, R. (Ed.), *Annals of child development*. 6 (1989) 1-60
21. Bandura, A., Adams N.E.: Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research*. 1 (1977) 287-310
22. Ajzen, I., Fishein, M.: *Understanding Attitudes and Predicting Social Behaviour*. Prentice-Hall, Englewood Cliffs, NJ (1980)
23. Van den Hooff, B., Van Weenen, F.D.L.: Committed to share: commitment and CMC use as antecedents of knowledge sharing. *Knowledge and Process Management*. 11(1) (2004a) 13-24
24. Ho, S.P., Hsu, Y., Lin, E.: Model for Knowledge-Sharing Strategies: A Game Theory Analysis. *The Engineering Project Organization Journal* 1(1) (2011) 53-65

25. Nazemi, J., Seyed-Hosseini, S., Fadaei, M.A.: Game-Theoretic Approach to Knowledge Sharing between Suppliers. A Case Study in the Iranian Automotive Industry (SAIPA). *Australian Journal of Basic and Applied Sciences*. 5(11) (2011) 1731-1741
26. Schrader, S.: Informal technology transfer between firms: co-operation through information trading. *Research Policy* 20 (1991) 153–170
27. Zia-ur-Rehman, K.A.J, Bin Dost, M.K., Wassan, A.A., Rasool, N.: Knowledge sharing behaviour of the students: comparative study of LUMS and COMSATS Kuwait Chapter of Arabian Journal of Business and Management Review. 1(4) (2011)138-149
28. Caipang, C.L.A.: Perception on Knowledge-sharing Activities among Industrial Technology Students in a Public Higher Education Institution. *Research Journal of Applied Sciences, Engineering and Technology*. 6(8) (2012) 1418-1423
29. Wangpipatwong, S.: Factors influencing knowledge sharing among university students. Paper presented at the Proceedings of the 17th International Conference on Computers in Education [CDROM]. Asia-Pacific Society for Computers in Education, Hong Kong (2009)
30. Chaudhry, A.B.: Knowledge sharing practices in Asian institutions: A Multi-Cultural Perspective from Singapore. IFLA, Oslo (2005)
31. Hussein, A.R.H., Nassuora, A.B.: Jordanian student's attitudes and perceptions towards knowledge sharing in institutions of higher education. *Int. J. Acad. Res.* 3 (2011) 401-405
32. Adler, P.S., Kwon, S.-W.: Social Capital: Prospects for a new concept. *Academy of Management Review*. 27 (1) (2002) 17-40
33. Abzari, M., Teimouri, H.: The effective factors on knowledge sharing in organizations. *The International Journal of Knowledge, Culture and Change Management*. 8(2) (2008)105-13
34. Riege, A.: Three-dozen knowledge sharing barriers managers must consider. *Journal of Knowledge Management*. 9(3) (2005) 18-35:
35. Sveiby, K.E., Simons, R.: Collaborative climate and effectiveness of knowledge work. *Journal of Knowledge Management*. 6 (5) (2002) 420-33
36. Connelly, C.E., Kelloway, K.: Predictors of employees' perceptions of knowledge sharing cultures. *Leadership & Organizational Development Journal* 24(5/6) (2003) 294-301
37. Davenport, T.H., Prusak, L.: *Working Knowledge*, Boston, MA: Harvard Business Press 1998
38. Nonaka, I., Takeuchi, H.: *The Knowledge Creating Company*. Oxford Press; New York (1995)
39. Naftanaila, I.: Factors Affecting Knowledge Transfer in Project Environment. *Review of International Comparative Management*. 11 (5) (2010) 834-840
40. Ojha, A.K.: Impact of team demography on knowledge sharing in software project teams. *South Asian Journal of Management*. 12(3) (2005) 67-78