

Survey on Factors Affecting University-Industry Knowledge Sharing Practices: The Case of Addis Ababa University College of Veterinary Medicine

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Abstract

Knowledge is an asset for organizations that brings competitive advantage if it is created, acquired, shared and applied properly. Knowledge sharing is a process that may take place across individuals as well as groups, departments and organizations to bring organizational competitiveness. Although knowledge sharing has significant importance for organizational competitiveness, the knowledge sharing process might be very complex due to different factors. Thus, the purpose of this study was to assess factors that affect university-industry knowledge sharing practices taking Addis Ababa University College of Veterinary Medicine (AAU-CVM) as a specific case. A cross sectional study design was applied to conduct the study during December, 2018 to May, 2018 and to select study participants simple random sampling was used. The source population consists of academic staff working in Addis Ababa University College of Veterinary Medicine. Study subjects those who consent to participate on the study were included using simple random sampling technique. The sample size required was calculated using Krejcie and Morgan sample determination table. Accordingly, from a total population of 80 academic staff in the college, 66 respondents were selected. The result of the study revealed that individual factors willingness (correlation coefficient=.581), trust (.612), motivation to share knowledge (correlation coefficient =.545) and awareness of KS as duties (correlation coefficient =.513); organizational factors (periodic plan for sharing knowledge (correlation coefficient =.346); and technological factors availability of up-to-date ICT infrastructure(correlation coefficient =.331) and updated website for sharing knowledge(correlation coefficient =.443) were identified as having significant impact on knowledge sharing practices. Thus, college of veterinary medicine should work on these identified significant knowledge sharing factors to get the most out of knowledge sharing with industry stakeholders.

Keywords: AAU-CVM; Knowledge sharing practice; University-industry

Introduction

Knowledge is among the most important strategic resource in organizations today. Knowledge, according to Mindahun, is the primary commodity and most important in the economy [1,2]. Managing knowledge is important in academic as well as in the business and industrial community due to its importance to maintain their competitiveness. As a result, knowledge management help organizations to acquire, create, refine, store, transfer, share and utilize knowledge [3].

Knowledge becomes a valuable resource and asset for organizations that brings competitive advantage if it is created, acquired, shared and applied properly. The key reason for the existence of organizations (either business or academic world) is knowledge it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices and norms. Unless it is shared with friends, staff, and the community at large, it will not be useful [4]. Knowledge sharing, according to Temtim, is a key activity in the organization that promotes conversion of individual knowledge into organizational knowledge where it can be used to create business value [5].

According to Becera-Fernandez, knowledge sharing is a process that may take place across individuals as well as groups, departments and organizations [6]. Solek-Borowska also described knowledge sharing as “exchanging experiences, thoughts or understandings with an expectation of gaining further knowledge” [7]. Knowledge sharing, according to this author, takes place at least between two parties or actors. As key drivers of innovation and major agents of economic growth, universities are viewed by many policy makers as “knowledge factories” with largely untapped reservoirs of potentially commercializable knowledge [7].

According to Solek-Borowska scenario on “how universities share knowledge”, universities generate knowledge and new technologies along with an innovative culture [7]. This author further explained knowledge as the primary “product” that can be “sold” in the form of educational services, research results, and expertise. Consequently, sharing knowledge is essential for knowledge-based organizations wanting to compete effectively in the wider market place and the pressure in this from the public and industry is becoming stronger [7]. Furthermore, the role of universities is not limited to provide knowledge to students; rather universities seek more contact with industry to commercialize research outputs, access complementary skills, and profit from interactive learning process. Firms, on the other hand, recognize universities as important source of knowledge that enhances competitiveness and innovation [7]. When organizations implement knowledge creation and sharing strategy with collaborative endeavor its competitive advantage have been continued [8].

Studies have been conducted previously on knowledge sharing practices of academic institutions which might be equally important for university-industry knowledge sharing practices. For instance, a case

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study research conducted in Malaysian public higher learning Institutes revealed that rewards, availability of time, organizational effort, organizational culture and lack of interaction as the five most important barriers for knowledge sharing [9]. Moreover, a research conducted on knowledge sharing in Jordanian Universities revealed that “academic staff have fewer mutual relationships, team working opportunities, intentions and motivations to share their knowledge” and younger staff are not motivated to be “creative” [10]. Basu and Sengupta also identify “integrated technical infrastructure, organizational culture, motivation and commitment of users and senior management support” as the four most critical success factors in their study conducted in the Indian Business School [11].

However, there is no research undertaken on knowledge sharing practices on university-industry in the specific context of Addis Ababa University College of Veterinary Medicine. Moreover, though there are researches conducted in the area, the research result can differ due to contextual factors [5,12]. It is also important to study the knowledge sharing practices in a specific context and to extend generalizations of existing findings to different contexts. Hence, this study focused on examining the existing university-industry knowledge sharing practices of College of Veterinary Medicine taking the specific institutional context in to consideration. To this end, this study attempted to examine the factors that affect knowledge sharing practices between Addis Ababa University College of Veterinary Medicine and stakeholder industry.

Materials and Methods

Research design

A cross-sectional approach was employed to assess factors affecting knowledge sharing practices of Addis Ababa University College of Veterinary Medicine with stakeholder industries. The College of Veterinary Medicine is one of the colleges under Addis Ababa University located at a distance of 50 km south east of the capital, Addis Ababa. It was established in 1963 with the objective of producing animal health assistants (Diploma program). It is the pioneer veterinary college for the nation. Currently it is upgraded to college level with diversified disciplines. The College is currently accomplishing three core missions: teaching, problem-solving research and community services.

Population and sampling

Addis Ababa University College of Veterinary Medicine has a total of 268 employees. Out of these 268 employees, 70.1% (188) were support staff and 29.9% (80) were academic staff. As a result, from a total population of 80 academic staff in the college, 66 respondents were selected using Krejcie and Morgan sample determination table [1]. A total of 66 academic staffs from all departments were selected to distribute the questionnaire designed for the purpose of this study through lottery method. The lottery was prepared by taking list of the academic staff from the selected college HRM; numbers were assigned to the names of the academic staff, and written on separate pieces of papers and put in the container and well shaken. Hence, 66 lottery papers were picked randomly from the container and the names corresponding to the selected numbers were used as respondents. Thus, 66 questionnaires were distributed to the respondents and 65 questionnaires that were included in the analysis were appropriately filled and returned.

Data collection

Primary and secondary data are the two types of data used in this research. Primary data are new information collected for the first time by a researcher, whereas secondary data are information already collected by others or somebody else and later used by a researcher [13].

The sources of data, for this study, were both primary and secondary sources of information. Data from primary sources were gathered from sample population of academic staff of Addis Ababa University college of Veterinary medicine through structured questionnaire. To draw secondary data, both published and unpublished sources of data were consulted to draw related literature. To draw secondary data, both published and unpublished sources of data were consulted.

Reliability of data collected

The objective of reliability test is to be sure that, if the study is repeated by following exactly the same procedure used by an earlier study and conducted the same case study all over again, the latter researcher arrives at the same result [14]. In Likert-type scales, it is important to calculate Cronbach’s alpha coefficient to test internal consistency or reliability [15]. According to them the acceptable values of alpha value is 0.7. The low value of alpha (<0.70) indicate poor inter-relatedness between items and a high value of alpha (>0.95) may suggest redundancies in the scale items. In addition, most research recommended using value of alpha ≥ 0.7 . For this study, the alpha value ≥ 0.7 was considered as acceptable as some authors consider items whose Alpha coefficient is 0.7 and above as reliable [15]. Thus, the overall Chronbach alpha test value is 0.848 which indicated that there is a high consistency among the items.

Result and Discussion

Profile of the respondents

The key demographic characteristics of respondents in terms of gender, age, level of education, academic rank, years of experience in higher learning institution and their respective department are presented in Table 1. The gender composition of respondents revealed that majority of the respondents were male which comprises of 95.4% (62) and the remaining 4.6% (3) were female. The highest percentages of respondents 55.4% (36) were within the age group of 41-50 years. Respondents with age group 31-40 years account 23.1% (15) of the total respondents. The remaining 15.4% (10) and 6.2% (4) were within the age group of above 50 years and 23-30 years respectively. With regard

Respondents profile	Classification	Frequency	Percent
Gender	Male	62	95.4
	Female	3	4.6
Age group	23-30 years	4	6.2
	31-40 years	15	23.1
	41-50 years	36	55.4
	Above 50 years	10	15.4
Level of education	First Degree	4	6.2
	Master’s Degree	30	46.2
	PhD	31	47.7
Academic rank	Lecturer	10	15.4
	Assistant Professor	21	32.3
	Associate professor	31	47.7
	Professor	3	4.6
Experience	Less than 3 years	2	3.1
	3-10 years	25	38.5
	Above 10 years	38	58.5
Department	APS	10	15.4
	BMS	13	20.0
	CLIS	15	23.1
	PAPA	14	21.5
	VMPH	13	20.0

Table 1: Respondents’ profile.

to respondents' level of education most of the respondents 56.9% (37) were PhD holder, 36.9% (24) were master's degree holder and 6.2% (4) were first degree holder.

Concerning respondents' distribution by academic rank, 47.7% (31) were associate professor, 32.3% (21) were assistant professor, 15.4% (10) were lecturer and only 4.6% (3) of the respondents were full professors. Regarding to respondents experience in higher learning institutions, 58.5% (38) were the most experienced respondents who have work experience in higher learning institutions above 10 years, respondents with 3-10 years' experience in higher learning institutions were 38.5% (25) and the least experienced respondent of the study (less than 3 years of experience in higher learning institution) were account 3.1% (2) of the total respondents. With regard to their respective academic department of the respondents, 23.1% (15) were from Clinical Studies (CLIS), 21.5% (14) were from parasitology and pathology (PAPA) department, 20% (13) of respondents were from department of Biomedical Sciences (BMS) and the rest 20% (13) were from department of Veterinary Microbiology and Public Health (VMPH).

Source: Questionnaire survey, 2018 (Table 1).

Factors Affecting Knowledge Sharing

Individual factors

The success of university-industry knowledge sharing depends on the individual knowledge sharing behavior which can be influenced by different factors [16]. Identifying this factors help to have a better knowledge sharing practice. Source: Questionnaire survey, 2018 (Table 2).

Willingness to share knowledge is likely influenced by the relationship established between the source and recipient; and willingness affects knowledge sharing success likely [16]. In this regard, as shown in Table 2 respondents were asked to express their level of agreement on their willingness to share knowledge to industry stakeholders. In line with this, 67.7% (44) confirmed their willingness to share knowledge to industry stakeholders. The mean value of responses is 4.23 which imply that academicians are highly willing to share knowledge to industry stakeholders.

With regard to the respondents' level of satisfaction on the existing university-industry knowledge sharing strategy, majority of the respondents 66.2% (43) expressed their disagreement. The mean value of responses is 2.38 which imply academicians under the study organization are not satisfied with the existing strategy to share knowledge to industry stakeholders.

Trust is an essential attribute for the success of knowledge sharing and can increase effective collaboration among individuals in an organization or among organizations [16]. As stated by Kim and Ju in their study on "An analysis of faculty perceptions: Attitudes toward knowledge sharing and collaboration in an academic institution", trust was not found significantly associated with KS. Respondents were also asked to provide whether they trust to share knowledge to

industry stakeholders. As a result, 60% (39) agreed and 23.1% (15) strongly agreed on the presence of trust to share knowledge to industry stakeholders. The mean value of responses is 4.63 which indicate that academicians in the study organization are highly trusted to share their knowledge to industry stakeholders.

Motivation is one of the driving factors for individuals to share their knowledge and knowledge sharing can be managed only by motivating individuals [16]. According to these authors, if employees are not motivated to share their knowledge, no amount of investment, infrastructure and technological intervention will make it effective. With regard to this, the study result revealed that 56.9% (37) agreed and 23.1% (15) strongly agreed that they are motivated to share knowledge to industry stakeholders; however, 23% (8) disagreed. The mean value of responses is 3.91 that indicate the respondents' agreement on their motivation to share knowledge to industry stakeholders.

From the survey results revealed, it is possible to infer that academicians in the study college are sharing their knowledge to industry stakeholders. With regard to their level of awareness, respondents were asked whether they are well aware that knowledge sharing is one of their duties, 63.1% (41) and 30.8% (20) of the respondents agreed and strongly agreed that knowledge sharing is one of their duties respectively. The mean value of responses is 4.22 which implies most of the respondents are aware that knowledge sharing is one of their duties.

Generally, the descriptive analysis for individual factors indicate that trust (mean=4.63, SD=.643) is the most important factor that affect knowledge sharing practices followed by willingness (mean=4.23, SD=.605), awareness (mean=4.22, SD=.649) and motivation (mean=3.91, SD=.897) [17-20].

Organizational factors

As shown in Table 3, 30.8% (20) of the respondents agreed and 7.7% (5) strongly agreed on the presence of motivational schemes by their university/colleges. The mean value of responses for this item indicates that majority of the responses lied on neutral. In general, as indicated in 4.2.2, except management support on career development with mean value of 3.57 and academic and administrative promotion with mean value of 3.92, the rest responses lied on the range of disagreement, which implies that in the implementation of KS there is lack of motivational scheme to share knowledge, lack of budget to create, acquire and share knowledge, lack of regular plan for knowledge sharing, lack of knowledge sharing platform and lack of policy or strategy to share knowledge. Source: Questionnaire survey, 2018 (Table 3).

Technological factors

With regard to technological factors, respondents were requested to rate their level of agreement as to the existence of up to date ICT infrastructure, appropriate knowledge management system, utilization of Internet to share knowledge and websites of the university/college updated regularly. In this regard, only the mean responses on utilization of the Internet lies on the range of agreement, the rest responses lied

Individual Factors	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean value	Std. Dev.
I am willing to share knowledge to industry stakeholder	-	2 (3.1%)	-	44 (67.7%)	19 (29.2%)	4.23	0.605
I am satisfied by the existing knowledge sharing strategies with industry stakeholders	6 (9.2%)	43 (66.2%)	4 (6.2%)	9 (13.8%)	3 (4.6%)	2.38	0.995
I trust to share knowledge with industry stakeholders	4 (6.2%)	5 (7.7%)	2 (3.1%)	39 (60%)	15 (23.1%)	4.63	6.431
I am highly motivated to share knowledge to industry stakeholders	-	8 (23%)	5 (7.7%)	37 (56.9%)	15 (23.1%)	3.91	0.897
I know that sharing knowledge is one of my duties	-	2 (3.1%)	2 (3.1%)	41 (63.1%)	20 (30.8%)	4.22	0.649

Table 2: Individual factors.

Organizational factors	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean value	Std. Dev.
There is motivational schemes to encourage KS outside my university/ college	6 (9.2%)	11 (16.9%)	23 (35.4%)	20 (30.8%)	5 (7.7%)	3.11	1.077
My university/college supports career development to encourage KS	2 (3.1%)	7 (10.8%)	18 (27.7%)	28 (43.1%)	10 (15.4%)	3.57	0.984
Academic and administrative promotions help improve KS practice	6 (9.2%)	5 (7.7%)	2 (3.1%)	42 (64.6%)	12 (18.5%)	3.92	0.797
In my university/college there is budget dedicated to acquire and share knowledge	4 (6.2%)	27 (41.5%)	14 (21.5%)	10 (15.4%)	10 (15.4%)	2.92	1.203
In my university/college there is periodic plan to acquire, organize and share knowledge	2 (3.1%)	29 (44.6%)	16 (24.6%)	11 (16.9%)	7 (10.8%)	2.88	1.083
My university/college facilitates knowledge sharing platforms (workshops, seminars...)	–	24 (36.9%)	12 (18.5%)	21 (32.3%)	8 (12.3%)	3.2	1.078
My university/college has a policy or strategy for research communication and dissemination	30 (30.8%)	20 (30.8%)	12 (18.5%)	22 (33.8%)	11 (16.9%)	3.37	1.098

Table 3: Organizational factors.

Technological Factors	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean value	Std. Dev.
My university/college has a very up-to-date ICT infrastructure that enable to share knowledge	2 (3.1%)	32 (49.2%)	6 (9.2%)	19 (29.2%)	6 (9.2%)	2.92	1.136
My university/college use appropriate KMS to share knowledge	4 (6.2%)	23 (35.4%)	22 (33.8%)	12 (18.5%)	4 (6.2%)	2.83	1.009
My university/college utilize Intranet and Internet to share knowledge	–	6 (9.2%)	13 (20%)	42 (64.6%)	4 (6.2%)	3.68	0.731
My university/college website updated regularly to share knowledge	6 (9.2%)	27 (41.5%)	18 (27.7%)	10 (15.4%)	4 (6.2%)	2.68	1.047

Table 4: Technological factors.

on the range of disagreement. As shown in Table 4 the study results revealed that among the technology factors respondents have a positive perception only for utilization of Internet for knowledge sharing, while there were lack of up-to-date ICT infrastructure, lack of appropriate knowledge sharing system to share knowledge, lack of knowledge sharing platform and lack of updated website to share knowledge were identified. Source: Questionnaire survey, 2018 (Table 4) [21-23].

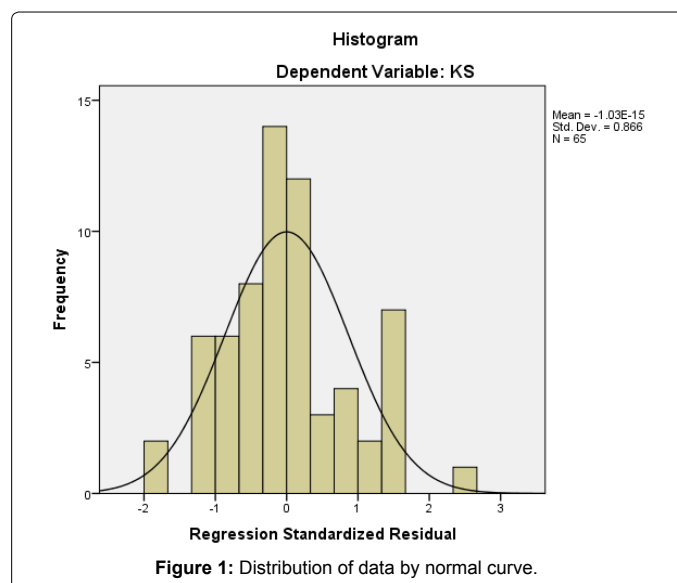
Result of Spearman Correlation Coefficient

The correlation coefficient result shows that the association between independent and dependent variables. Correlation between dependent variable (KS) and willingness is 0.581. There is a statistically significant positive relationship between trust and knowledge sharing ($r=.612, p<.01$); willingness and knowledge sharing ($r=.581, p<.01$); individual motivation and knowledge sharing ($r=.545, p<.01$); and awareness and knowledge sharing ($r=.513, p<.01$). There is a statistically significant but weaker positive relationship between periodic plan and knowledge sharing ($r=.346, p<.01$); and organizational support for promotion and knowledge sharing ($r=.277, p<.05$) (Table 5).

Linear regression is used to test the data if it is normally distributed. As shown in Figure 1, the histogram is nearly similar to the normal curve and it meets the linear regression requirement.

As indicated in Table 6a the identified factors that affect KS practices can explain only 67.7% of the variations/changes of the KS practices. This implies that about 32.3% of the variation/change is explained by other factors which need further research to identify those factors.

- a. Dependent Variable: KS
- b. Predictors: (Constant), Website, Plan, Motivation, Trust,



willingness, ICT infrastructure, Promotion, Policy or strategy, Duties.

As shown in Table 6b, the acceptability of the model has also checked with ANOVA and the model is acceptable and statistically significant at 95% level of confidence. The value of the sum of squares for regression is greater as compared to residual.

Conclusion and Recommendation

Knowledge sharing is vital component of organizations to be competitive in today's competitive environment. Internally

Independent variables		Dependent variables (KS)
Individuals Willingness to share knowledge	Correlation coefficient	0.581**
	Sig. (2-tailed)	0
	N	65
Individuals Satisfaction	Correlation coefficient	0.106
	Sig. (2-tailed)	0.4
	N	65
Individual's trust to share knowledge	Correlation coefficient	0.612**
	Sig. (2-tailed)	0
	N	65
Individual motivation	Correlation coefficient	0.545**
	Sig. (2-tailed)	0
	N	65
Individuals awareness of KS as duties	Correlation coefficient	0.513**
	Sig. (2-tailed)	0
	N	65
Organization's motivational scheme	Correlation coefficient	-. 228
	Sig. (2-tailed)	0.067
	N	65
Organizational support	Correlation coefficient	0.206
	Sig. (2-tailed)	0.099
	N	65
Organizational support for promotion	Correlation coefficient	0.277*
	Sig. (2-tailed)	0.025
	N	65
Organizational budget for KS	Correlation coefficient	0.213
	Sig. (2-tailed)	0.089
	N	65
Periodic plan for KS	Correlation coefficient	0.346**
	Sig. (2-tailed)	0.005
	N	65
KS platform (workshops, seminars..._	Correlation coefficient	0.199
	Sig. (2-tailed)	0.111
	N	65
KS policy or strategy	Correlation coefficient	0.296*
	Sig. (2-tailed)	0.017
	N	65
Up-to-date ICT infrastructure	Correlation coefficient	0.331**
	Sig. (2-tailed)	0.007
	N	65
KMS to share knowledge	Correlation coefficient	0.156
	Sig. (2-tailed)	0.216
	N	65
ICT utilization (Internet)	Correlation coefficient	-0.194
	Sig. (2-tailed)	0.122
	N	65
Website updated regularly to share knowledge	Correlation coefficient	0.443**
	Sig. (2-tailed)	0
	N	65

** Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Table 5: Result of Spearman Correlation coefficient.

created knowledge by no means is sufficient for organizations to be competitive. Due to this fact, today's organization is looking in to external organizations such as universities in search of knowledge. But, there are different factors that significantly affect the knowledge sharing practices between organizations. Thus, organizations should

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.870 ^a	0.758	0.677	5.41322

^aPredictors: (Constant), Website, Plan, Motivation, Trust, willingness, ICT infrastructure, Promotion, Policy or strategy, Duties.

Table 6a: Linear Regression Model Summary.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4398.444	16	274.903	9.381	.000 ^b
Residual	1406.541	48	29.303		
Total	5804.985	64			

^bPredictors: (Constant), Website, Plan, Motivation, Trust, willingness, ICT infrastructure, Promotion, Policy or strategy, Duties

Table 6b: Acceptability of Model Fitness (ANOVA (b)).

try to maximize their advantage from the knowledge sharing factors are using different mechanisms. At individual level, willingness to share, trust to share, motivation to share, awareness of KS as duties, and periodic plan for sharing knowledge. At organizational level, lack of motivational schemes for knowledge sharing; lack of budget to create, acquire and share knowledge; lack of regular plan to share knowledge; lack of knowledge sharing platform; to minimize or alienate these challenges, the AAUCVM should provide organizational support by devising motivational schemes to share knowledge, regularity plan to share knowledge and by allocating reasonable budget for knowledge sharing and implement knowledge sharing platforms such as seminars, workshops and conferences regularly. At technological dimension, lack of up-to-date ICT; lack of appropriate KMS to share knowledge and the university/college website were not updated regularly. Hence to fill these identified gaps AAUCVM should up-to-date ICT infrastructure to share knowledge, implement appropriated KMS to share knowledge and the university/college ICT sections should regularly update the website and make reach in content.

Limitations of the study and future research directions

This research was focused on a single college of Addis Ababa University and only from the perspective of the college. However, conducting research in all colleges and institutions of Addis Ababa University may help to have a broader understanding about the university-industry KS practices of AAU. Thus, it is recommended to conduct further research by considering all colleges and institutions of AAU and including samples from industry stakeholders. This research also focused on some variables that affect KS practices. Hence, further research should be conducted on other variables to provide greater reliability to research findings in the area.

Authors' Contributions

All authors are participated in study conception, design, data collection and analysis, interpretation of data, and drafting of manuscript. All authors participated in critical appraisal of the manuscript, read and approved the final manuscript.

Conflict of Interest

The authors declare that they have no conflict of interests.

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