

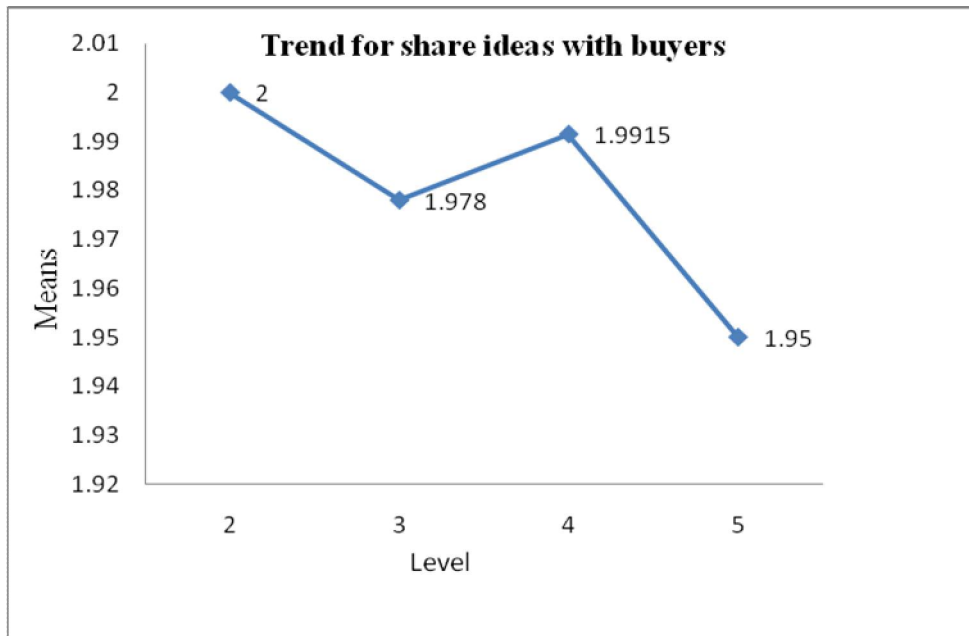
expected variation indicates the level effect present in the data. More detail of the level effects can be obtained by studying the deviation of the mean of each level from grand mean. The one-way ANOVA is useful to compare the effects of multiple levels with multiple observations at each level and utilized here to study the behavior of different variables on knowledge transfer. ANOVA puts all the data into one number (F) and provides one P for the null hypothesis. The ANOVA test compare to other comparison tests such as t - tests also has fewer experiment- wise error rates (<http://www.psychstat.missouristat.edu>), and considered appropriate here to test the hypothesis. Table 1.2 shows the ANOVA tests for hypothesis H_1 to consider the effect of two sub-hypotheses H_{1a} and H_{1b} on knowledge transfer. The relationship of each sub-hypothesis on knowledge transfer in Turkish SMEs is considered next.

H_{1a} : Turkish SMEs share knowledge within their network from buyer’s ideas

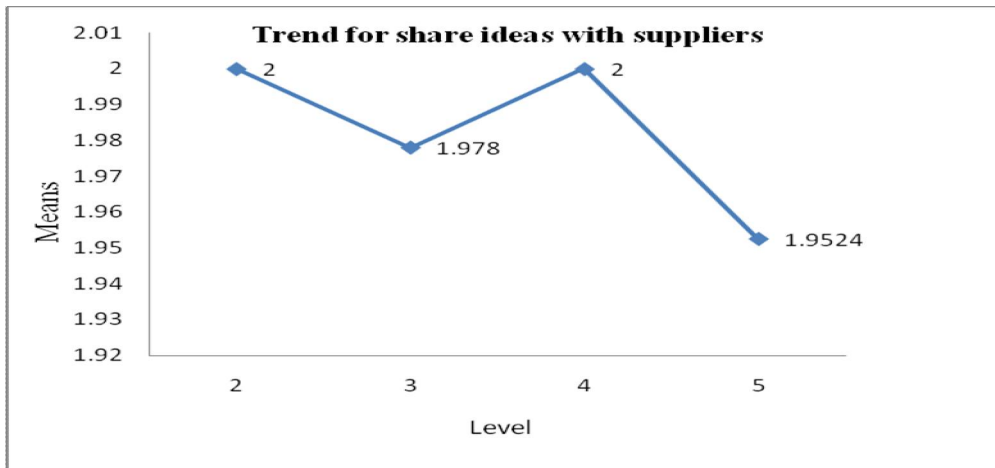
The Table 1.2 shows the value of $F = 0.932$ which is smaller than the critical value of 2.63 for the F -distribution at 3 and 260 degrees of freedom and 95% of confidence (*obtained using online calculator for critical value of F from <http://www.danielsoper.com>*). The significant value $p > 0.05$ indicates that effects are not significant. There is sufficient evidence to accept the null hypothesis and thus alternative hypothesis H_{1a} is rejected.

H_{1b} : Turkish SMEs share knowledge within their network from supplier’s ideas

The Table 1.2 shows the value of $F = 1.723$ which is smaller than the critical value of 2.63 for the F -distribution at 3 and 261 degrees of freedom and 95% of confidence. The significant value of $p > 0.05$ with value of F indicates that the null hypothesis is accepted and thus alternative hypothesis H_{1b} is rejected. This concludes that knowledge transfer is not directly affected with the sharing of knowledge from buyers and suppliers. The trend in means as shown in Graphs 1.1 and 1.2 also confirmed that there is weak form of relationship with knowledge transfer.



Graph 1.1: Trend for Share Ideas with Buyers for KT



Graph 1.2: Trend for Share Ideas with Suppliers for KT

Table 1.3: Summary of the Results of the Testing of Hypothesis 1

<i>H_{1a}-From buyer's ideas</i>	<i>Not Supported</i>
<i>H_{1b}-From supplier's ideas</i>	<i>Not Supported</i>

Finding for Hypothesis 1: The above two sub-hypotheses are not supported by the respondents and overall H₁ is thus rejected.

The following analysis will test the correlation between two variables from Turkish SMEs employees considering various factors supporting the hypotheses: *H₂: Adoption and utilization of the IT applications in the Turkish SMEs is essential for their success.* The correlation coefficients will be first conducted to test the supporting relation between these two variables for the same factor. For example in case of a Company's website, how useful this factor is for adoption and utilization of IT in the organization. This correlation coefficient will thus indicate the support of each factor in the adoption and utilization of IT technology.

The Table 1.4 shows the correlation coefficients and significance levels for each factor. There is a strong positive correlation between the two variables for Company's website [$r = 0.815$, $N=260$, $p<0.01$], indicating that Company's website is important. Similarly there is strong positive relationship for E-mail [$r = 0.825$, $N=265$, $p<0.01$], Internet [$r = 0.405$, $N=265$, $p<0,01$] and Internet Electronic Bulletin Board [$r = 0.437$, $N=265$, $p<0.01$]. Only two factors show weak relationship but both are positive with high statistical significant. The value for Video conferencing is [$r = 0.132$, $N=265$, $p<0.05$] whereas for E-library is [$r = 0.242$, $N=265$, $p<0.01$]. The comparatively low value is may be due to the unawareness of these two new technologies in Turkey for KT.

Table 1.4: Correlation Test for Hypothesis 2 (H₂)

Correlations

	Most useful for idea sharing-Company's website	Most useful for idea sharing-Email	Most useful for idea sharing-Video conferencing	Most useful for idea sharing-E-Library	Most useful for idea sharing-Internet	Most useful for idea sharing-Internal Electronic Bulletin Board	How good IT applications used by employees-company's website	How good IT applications used by employees-Email	How good IT applications used by employees-Video Conferencing	How good IT applications used by employees-E-Library	How good IT applications used by employees-Internet	How good IT applications used by employees-Internal Electronic Bulletin Board
IT Most useful for idea sharing-Company's website	1	.815**	.113	-.097	.584**	.611**	.815**	.611**	-.447**	-.447**	-.408**	.281**
		.000	.070	1.9	.000	.030	.000	.000	.000	.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
IT Most useful for idea sharing-Email	.815**	1	.110	-.094	.738**	.714**	1.000**	.825**	-.568**	-.556**	.500**	.340**
		.000	.073	.127	.000	.030	.000	.000	.000	.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
IT Most useful for idea sharing-Video conferencing	.113	.110	1	-.088	.036	.030	.110	.053	.132*	.132*	-.045	.076
		.073	.073		.154	.565	.230	.073	.392	.031	.462	.215
		260	260	260	260	260	260	260	260	260	260	260
IT Most useful for idea sharing-E-Library	-.097	-.094	-.088	1	.120	-.226**	-.094	-.010	.242**	.242**	-.096	-.140*
		.112	.127	.154	.052	.030	.127	.871	.000	.030	.120	.022
		260	260	260	260	260	260	260	260	260	260	260
IT Most useful for idea sharing-Internet	.584**	.738**	.036	.120	1	.527**	.738**	.811**	-.436**	-.436**	.500**	.390**
		.000	.000	.052	.052	.030	.000	.000	.000	.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
IT Most useful for idea sharing-Internal Electronic Bulletin Board	.611**	.714**	.065	-.226**	.527**	1	.714**	.664**	-.381**	-.381**	.421**	.437**
		.000	.000	.290	.000	.000	.000	.000	.000	.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
How good IT applications used by employees-company's website	.815**	1.000**	.110	-.094	.738**	.714**	1	.825**	-.568**	-.556**	.500**	.340**
		.000	.073	.127	.000	.030		.000	.000	.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
How good IT applications used by employees-Email	.611**	.825**	.053	-.010	.611**	.654**	.825**	1	-.405**	-.405**	.474**	.292**
		.000	.392	.871	.000	.030	.000		.000	.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
How good IT applications used by employees-Video Conferencing	-.447**	-.568**	.132*	.242**	-.436**	-.381**	-.568**	-.405**	1	1.000**	-.182**	-.321**
		.000	.031	.000	.000	.030	.000	.000		.030	.000	.000
		260	260	260	260	260	260	260	260	260	260	260
How good IT applications used by employees-E-Library	-.447**	-.568**	.132*	.242**	-.436**	-.381**	-.568**	-.405**	1.000**	1	-.182**	-.321**
		.000	.031	.000	.000	.030	.000	.000	.000		.000	.000
		260	260	260	260	260	260	260	260	260	260	260
How good IT applications used by employees-Internet	.403**	.500**	-.045	-.096	.405**	.421**	.500**	.474**	-.182**	-.182**	1	.267**
		.000	.462	.120	.000	.030	.000	.000	.000	.000		.000
		260	260	260	260	260	260	260	260	260	260	260
How good IT applications used by employees-Internal Electronic Bulletin Board	.281**	.340**	.076	-.140*	.390**	.437**	.340**	.292**	-.321**	-.321**	.267**	1
		.000	.215	.022	.000	.030	.000	.000	.000	.000	.000	
		260	260	260	260	260	260	260	260	260	260	260

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

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

The data collected suits for the Chi-square test and it is now performed to explore the relationship between two categorized variables to test the Null hypothesis.

Company's Website (H_{2a})

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	715,828 ^a	12	,000
Likelihood Ratio	597,239	12	,000
Linear-by-Linear Association	172,174	1	,000
N of Valid Cases	260		

a. 3 cells (15,0%) have expected count less than 5. The minimum expected count is 2,05.

The Pearson Chi-square value for Company’s website as shown in above table is with 12 degree of freedom =715,828 and significance value $p < 0.05$. These results indicate that there is statistically significant relationship between the variables and thus Null hypothesis H_{2a} is rejected. This implies that alternative hypothesis H_{5a} is supported. However, the Chi-square test does not indicate the extent of relationship between two variables.

E-mail (H_{2b})

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	658,974 ^a	9	,000
Likelihood Ratio	567,427	9	,000
Linear-by-Linear Association	179,816	1	,000
N of Valid Cases	265		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 6,66.

These results indicate there is statistically significant relationship between the variables for E-mail (*chi-square with 9 degree of freedom = 658,974, $p < 0.05$*) and thus Null hypothesis H_{05b} is rejected implying that alternative hypothesis H_{2b} is supported.

Video conferencing (H_{2c})

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	109,428 ^a	9	,000
Likelihood Ratio	59,330	9	,000
Linear-by-Linear Association	4,625	1	,032
N of Valid Cases	265		

a. 8 cells (50,0%) have expected count less than 5. The minimum expected count is ,14.

These results indicate that there is statistically significant relationship between the variables for Video conferencing (*chi-square with 9 degree of freedom = 109,428, $p < 0.05$*) and thus Null hypothesis H_{05c} is rejected implying that alternative hypothesis H_{2c} is supported.

E-library (H_{2d})

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	436,276 ^a	12	,000
Likelihood Ratio	280,571	12	,000
Linear-by-Linear Association	15,478	1	,000
N of Valid Cases	265		

a. 12 cells (60,0%) have expected count less than 5. The minimum expected count is ,18.

These results also report that there is statistically significant relationship between the variables for E-library (chi-square with 12 degree of freedom = 436,276, $p < 0.05$) and thus Null hypothesis H_{2d} is rejected implying that alternative hypothesis H_{2d} is supported.

Internet (H_{2e})

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64,196 ^a	9	,000
Likelihood Ratio	62,263	9	,000
Linear-by-Linear Association	43,198	1	,000
N of Valid Cases	265		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5,13.

These results show that there is statistically significant relationship between the variables for internet (*chi-square with 9 degree of freedom = 64,196, $p < 0.05$*) and thus Null hypothesis H_{2e} is rejected implying that alternative hypothesis H_{2e} is supported.

Internet Electronic Bulletin Board (H_{2f})

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	291,536 ^a	9	,000
Likelihood Ratio	257,380	9	,000
Linear-by-Linear Association	50,512	1	,000
N of Valid Cases	265		

a. 3 cells (18,8%) have expected count less than 5. The minimum expected count is 2,44.

These results indicate that there is a statistically significant relationship between the variables for Internet electronic bulletin board (*chi-square with 9 degree of freedom = 291,536, $p < 0.05$*) and thus Null hypothesis H_{2f} is rejected implying that alternative hypothesis H_{2f} is supported.

Table 1.5: Summary of the Results of the Testing of Hypothesis 2

<i>H_{2a}-Company's Website</i>	<i>Supported</i>
<i>H_{2b}-E-mail</i>	<i>Supported</i>
<i>H_{2c}-Video Conferencing</i>	<i>Supported</i>
<i>H_{2d}-E-library</i>	<i>Supported</i>
<i>H_{2e}-Internet</i>	<i>Supported</i>
<i>H_{2f}- Internal Electronics Bulletin Board</i>	<i>Supported</i>

Finding for Hypothesis 2

The above six sub-hypotheses are supported by the views indicated by the employees in the Turkish SMEs and overall H_2 is thus accepted.

Finally, the results show that hypothesis H_1 is not accepted because the respondents did not think that ideas obtained from buyers and suppliers can be used to enhance the knowledge transfer in SMEs. Finally various IT resources are considered in line with the available literature to find the effect of these for KT in Turkish SMEs. The analysis results show that some of the known IT technologies in Turkey such as E-mail, Internet, website etc. are also considered valuable and the related hypothesis H_2 is also accepted. This shows the general trend of considering various themes affecting the development of KT in Turkish textile and apparel industry.

Limitations of the Study:

This study provides an insight into the Turkish textile and apparel industry and establishes the qualitative and quantitative approach to find out the important determinants for knowledge transfer activities. The study was conducted using standard procedures. A number of limitations, however, are noted for this study:

- Textile and apparel industry is one of the biggest manufacturing industries in Turkey and data collected for analysis were from only 265 respondents. The response might not thus truly act as representative of the whole Turkey and the findings may not be generalized at large.
- The study was conducted only in the four big cities (*Istanbul, Ankara, Bursa and Izmir*) but textile and apparel industry in Turkey is widespread in small towns and villages and may represent different views for KT.
- One of the limitations of this research is the complexity of the terms used for knowledge transfer in Turkish textile and apparel industries and was narrowed down sometimes for the purpose of the study.

Further Recommendations:

- A number of recommendations, which follow from this initial study, are made below for future research:
- This study can be extended to study the knowledge transfer activities in any SMEs discipline.
- A larger study might be conducted by adding the parameter to study the knowledge transfer mechanism in any big enterprise.
- This study can be used to make a comparison of knowledge transfer activities in SMEs either in the same country or several developing countries.

CONCLUSION

Accepting knowledge transfer activities in a broader perspective is both beneficial and important because it provides a set of tools and a visualization that allows better understanding and certain interventions if needed. Elements including knowledge sharing and IT technology played a big role in this study in discovering the knowledge transfer practices in Turkish SMEs.

A vast majority of the Turkish textile and apparel industry runs as a family business and they mostly rely on old technology and also are reluctant to change. Owners or managers do not consider that KT is important for the success of their business and want to prevent outflow of knowledge from the company. This also puts barriers in acquiring knowledge from outside, and makes knowledge trans-

fer activities even harder. This study proposed four themes necessary for the success of KT and illustrated the important practices used to achieve effective knowledge transfer in Turkish textile and apparel industry. Although many factors considered in literature reviews were found not important in the context of Turkish textile and apparel industry but are sufficient at present to influence the other textile and apparel industries to start the knowledge transfer activities in their organization. They require to shed their conservative approach and to adopt best practices from all over the world to survive in today's rapidly evolving global market with intense competition. Therefore, the textile and apparel industry in Turkey adapt to practices the knowledge transfer activities and this will both help and enforce them to improve continuously. The results point to knowledge transfer in a firm to be crucial for subsequent actions in the Turkish market. Another implication for managers is that the customer is connected to other business therefore supplier has to understand what happens in the business exchange for knowledge sharing activities.

REFERENCES

- Akalin, M. (2001), Insight into the Turkish Textile and Apparel Industry, *Electronic Journal of Textiles*, Vol 1, No 1, 25 (1), pp: 107- 133.
- Argote, L., and Ingram, P., (2000), Knowledge transfer: A Basis for Competitive Advantage in Firms, *Organisational Behavior and Human Decision Processes*, 82 (1), pp: 150- 169.
- Argyris, C., and Schon, D.A., (1974), *Theories of Action in Practice – Increasing Professional Effectiveness*. Jossey– Bass, San Francisco.
- Argyris, C., and Schon, D.A., (1978), *Organizational Learning: A Theory Action Perspective*. Addison-Wesley, Reading MA.
- Bajracharya, P., Masdeu, N.R., (2006), Tacit Knowledge Transfer, In Small Segment of Small Enterprises, International Master’s Program in Strategy & Culture LIU– EKI/STR- D- 06/003- SE, Linköping University, Sweden.
- Boisot, M., (1998), *Knowledge Assets: Securing Competitive Advantage in the Information Economy*, Oxford University Press, New York.
- Davenport, T.H., and Prusak, L., (1998), *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston, MA.
- Davenport, T.H., and Prusak, L., (2000), *Working Knowledge. How Organizations Manage What They Know*. Harvard Business School Press, Boston.
- Demarest M., (1997), Understanding Knowledge Management, *Long Range Planning*, 30 (3), pp: 374- 384.
- Eraslan, İ.H., (2008), *The Effects of Competitive Strategies on Firm Performance: A Study in Turkish Textile and Apparel Industry Considering Mediating Role of Value Chain Activities*, Unpublished PhD Dissertation, Bođaziçi University.
- Ercan E., (2002), Changing World Trade Conditions Force the Turkish Textile and Apparel Industry to Create New Strategies, *Journal of Textile and Apparel, Technology and Management*, Vol 2, Issue IV, Fall.
- Export Promotion Center (ÝGEME) (2008), Annual Reports and Statistical Data, T.C. Bařbakanlık Ýhracatý Geliřtirme Etüd Merkezi (ÝGEME), retrieved from <http://www.igeme.org.tr>.
- Frappaolo, C., and Capshaw, S., (1999), Knowledge Management Software: Capturing the Essence of Know-how and Innovation, *The Information Management Journal*, July, pp: 44- 48.
- Garvin D.A., (1993), Building a Learning Organization, *Harvard Business Review*, July/ August, pp: 78-91.
- Grant, R.M., (1996), Prospering in Dynamically Competitive Environments: Organizational Capability as knowledge integration, *Organization Science*, 7 (4), pp: 175- 387.
- Gutpa A.K. & Govindarajan V., (2000a), Knowledge Flows Within Multinational Corporations, *Strategic Management Journal*, 21, pp: 473- 496.

Gynawali, R., Stewert, H., and Grant, H., (1997), Creation and Utilization of Organizational Knowledge: An Empirical Study of the Role of Organizational Learning on Strategic Decision Making, *Academy of Management Proceedings*, pp: 16- 20.

<http://www.kosgeb.gov.tr/Ekler/Dosyalar/Information/6/Sme.doc>

Huber, G., (1991), Organizational Learning: The Contributing Processes and the Literatures, *Organization Science*, 2 (1), pp: 88- 115.

Huysman, M., and DeWit, D., (2002), *Knowledge Sharing in Practice*, Kluwer Academics, Dordrecht.

Levitt, B., and March, J.G., (1988), Organizational learning, *Annual Review of Sociology*, 14, pp: 319- 340.

March, J.G., and Olsen, J.P., (1975), The Uncertainty of the Past: Organizational Learning under Ambiguity, *European Journal of Political Research*, 3, pp: 147- 171.

McAdam, R., and McCreedy, S., (1999), The Process of Knowledge Management within Organizations: A Critical Assessment of Theory and Practice, *Knowledge and Process Management*, 6 (2), pp: 101- 113.

Nonaka, I., (1991), The Knowledge Creating Company, *Harvard Business Review*, 69, pp: 96– 104.

Nonaka, I., and Takeuchi, H., (1995), *The Knowledge Creating Company*, Oxford Press, Oxford.

Polanyi, M. (1967), *The Tacit Dimension*. Anchor, Garden City, NY.

SPSS <http://www.psychstat.missouristat.edu>

Stewart T.A. (2001), Intellectual Capital: Ten Years Later, How Far We've Come, *Fortune*, May 28, pp: 1- 3.

Stewart, T., (1997), *Intellectual Capital: The New Wealth of Organizations*, Currency Doubleday, New York, NY.

Stover, M., (2004), Making Tacit Knowledge Explicit, *Reference Services Review*, Vol 32, No 2, pp: 164- 73.

Swan J., Newell S., Scarbrough, H., and Hislop, D., (1999), Knowledge Management and Innovation: Networks and Networking, *Journal of Knowledge Management*, 3 (4), pp: 262- 275.

The General Secretariat of Istanbul Textile and Apparel Exporter Associations (ITKIB), 2006. Annual Reports and Statistical Data, Retrieved from, <http://www.itkib.org.tr>

Turkish Clothing Manufacturers Association (TCMA) (2008), Annual Reports and Statistical Data, Türkiye Giyim Sanayicileri Derneği (TGSD), Retrieved from <http://www.tgsd.org.tr>

Yang, G., (2003), The Internet and Civil Society in China: A Preliminary Assessment, *Journal of Contemporary China*, Vol 12, No 36, pp: 453- 475.