

This article was downloaded by:

Publisher: KKG Publications

Registered office: 18, Jalan Kenanga SD 9/7 Bandar Sri Damansara, 52200 Malaysia

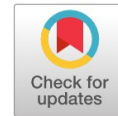


## Key Knowledge Generation

Publication details, including instructions for author and subscription information:

<http://kkgpublications.com/business/>

### Leaders Impact on Organizational Behavior: A Text Mining Study on Universities in Turkey



GOKAN SILAHTAROGLU <sup>1</sup>, PELIN VARDARLIER <sup>2</sup>

<sup>1</sup> Department of Management Information Systems, Istanbul Medipol University, Istanbul, Turkey

<sup>2</sup> Department of Human Resources, Istanbul Medipol University, Istanbul, Turkey

Published online: 24 April 2016

**To cite this article:** Silahtaroglu, G., & Vardarli, P. (2016). Leaders impact on organizational behavior: A text mining study on universities in turkey. *International Journal of Business and Administrative Studies*, 2(2), 52-56.

DOI: <https://dx.doi.org/10.20469/ijbas.2.10005-2>

**To link to this article:** <http://kkgpublications.com/wp-content/uploads/2016/2/Volume2/IJBAS-10005-2.pdf>

PLEASE SCROLL DOWN FOR ARTICLE

KKG Publications makes every effort to ascertain the precision of all the information (the "Content") contained in the publications on our platform. However, KKG Publications, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the content. All opinions and views stated in this publication are not endorsed by KKG Publications. These are purely the opinions and views of authors. The accuracy of the content should not be relied upon and primary sources of information should be considered for any verification. KKG Publications shall not be liable for any costs, expenses, proceedings, loss, actions, demands, damages, expenses and other liabilities directly or indirectly caused in connection with given content.

This article may be utilized for research, edifying, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly verboten.

# LEADERS IMPACT ON ORGANIZATIONAL BEHAVIOR: A TEXT MINING STUDY ON UNIVERSITIES IN TURKEY

GOKHAN SILAHTAROGLU <sup>1\*</sup>, PELIN VARDARLIER <sup>2</sup>

<sup>1</sup> Department of Management Information Systems, Istanbul Medipol University, Istanbul, Turkey

<sup>2</sup> Department of Human Resources, Istanbul Medipol University, Istanbul, Turkey

## Keywords:

Text Mining  
Organizational Behavior  
Leader  
Leadership

**Received:** 05 February 2016

**Accepted:** 02 March 2016

**Published:** 24 April 2016

**Abstract.** Building organizational behaviour for managements in businesses is rather challenging. Although in some cases, due to the external forces such as competition, risk of unemployment, the balance of payments etc., it happens itself in the right way, in many more cases, managers should handle it carefully delicately. For this purpose, the leader plays an important role when s/he directs the whole organization with his/her words and instructions. On the other hand, thanks to the developing machine learning algorithms and data available online, text mining have been used for information extraction and semantics. There are plenty of successful studies done via text mining for business. In this study, we used text mining tools to analyze leaders' words at universities in Turkey. We extracted meaningful keywords used by university rectors in their main speeches and clustered universities around those words. Then again, we ranked and clustered the same universities with parameters like publications done, citations, number of students per professors etc. We overlaid two clusters to see if they match. Our study has shown that the top 15 and bottom 15 universities in the ranked table make two different clusters again when done with universities' rectors' words. Our study concludes that leaders' words may give clues about the organization's organizational behaviour and general profile.

©2016 KKG Publications. All rights reserved.

## INTRODUCTION

### Organizational Behavior and Leadership

Organizational behavior is a field of study and application that investigates human behavior, attitude, discipline and culture within an organization. When all of these elements of multiple people come together they merge into a unique organizational behavior. Organizational behavior has a great impact on the performance and productivity of the organization. It merely plays a prominent role on the achievements of the organization (Kasemsap, 2015). So, managers would like to form and shape the organizational behavior in accordance with their tactical and strategical plans. Organizational behavior is affected by many different factors though. Some of them are background of employees, demographic and gender differences or similarities, power of competition and rivals, job satisfaction, technology, motivation and leadership within the organization.

Thanks to the increasing competition in business life and fast growing market and initiative options available in various sectors, the importance of leadership in organizations has increased recently. Indeed, leadership not only comes up with future strategies but also inspects the steps walking through these strategies. The aim of the leader is not to gain priorities and privileges in the organization, yet to furnish synergy among

employees and make them work harder and motivated so that the organization could ante up its positions in the sector. It is obvious that the leader of an organization is not a figure only, but an important factor with his/her opinions, words and gestures. When it comes to assess the success of a leader we simply assess his/her impact or the contribution to the organizational achievements. Studies show that a leader may have a contribution up to 67% on sales, profit and market share increase (Buyukyavuz, 2015).

The leader in an organization should understand, well define, control, direct and manage the individual behavior in the organization so that she can form and employ organizational behavior for business purposes and strategies (Shajan, 2015). From this perspective, one way of organizing and managing organizational behavior is to exploit leadership in the organization i.e how the leader motivates staff, enhances job satisfaction with his/her words, attitudes and even gestures. Leaders send messages to their employees via different media. This may be weekly e-mails, monthly speeches, daily gestures and mimics. In this study, we aim to assess the power of leaders words on organizations and organizational behavior. That means how much a leader can affect the organizational behavior or in other words

\*Corresponding author: Gokhan Silahtaroglu

†Email: [gsilahtaroglu@medipol.edu.tr](mailto:gsilahtaroglu@medipol.edu.tr)



how much the leader knows and understands the organization so she acts and speaks along with that. The study encompasses 157 university rectors main statements which are placed in the front page of university web sites. In these texts rectors or leaders of the universities point out how their universities should be. They give clues both to lecturers, researchers and students. The leaders motivate them to teach well, research well, study well etc. Some stress research as some point out social activities and some emphasize national values. Some of these universities are top universities in Turkey and they produce hundreds of scientific papers, receive hundreds of cites every year, lead hundreds of thousand dollars projects. Some of the universities are just teaching universities. Scholars are not productive enough to participate in sector projects neither they produce papers enough amount to be mentioned. What we wanted to see is that if rectors words give any clue about the situation of the organization or university. If the rector mentions sportive and social activities, teaching and learning or if the rector stresses research, projects, international conferences etc. does it have any impact on the people at the university that create a certain type of organizational behavior which will place the university in a different situation; a teaching university or a research university?

#### **Text Mining and Using it for Business Purposes**

Text mining is the sub model of data mining. Instead of using data only on transactional databases, this model exploits any kind of text data available in digital format (He, 2013). Online newspapers, blogs, mails sent and received and comments and reviews on social media or some portals are some of them. Analyzing these texts, one can discover valuable information for different purposes (Premchaiswadi & Romsaiyud, 2012). Classification, clustering or association rule learning algorithms may be used with these data in text format as it is in regular data mining. As it is for transactional database, text data also should be converted into a proper data warehouse in order to be used with text mining algorithms. When a database admin or owner builds a transactional database, s/he does not focus on a future information retrieval process. He or she merely would build the database as organized enough as to get some reports for some certain periods. For text data it is even sharper. People never think about a future text mining research when they, text, send email messages, write a comment under a picture in Instagram, Facebook or write their opinions in Twitter. Considering the structure of text it is much harder to construct a data warehouse from texts than it is from transactional corporate databases. Today, because most of text or written materials are on the Internet web pages, sometimes, text mining is also called as web mining (Premchaiswadi & Romsaiyud, 2012).

Every other day the amount of text data available in web pages are getting bigger and bigger. That's where big data concept emerges from (Assuncao, Calheiros, Bianchi, Netto & Buyya, 2015). All these text data are sitting somewhere on the Internet and waiting to be processed. Most of the text data on the Internet are user generated data (UGD) on social media like Facebook, Twitter, Instagram or information sharing web sites like blogs, forums or discussion groups. Social media like Twitter and Facebook contain data about the user as well so for researches they are more attracting (Russell, 2013).

#### **LITERATURE REVIEW**

In the literature there are plenty of researchers and success stories of using UGD on social networks. Here it will be good to give some examples from recent studies:

Online user generated data has been used by researchers for different purposes. During a government crisis the content of social media changes dramatically and people start to text or tweet about the crisis, these texts or text data can be used for analysis and to understand reaction of people in case of emergency (Graham, Avery & Park, 2015). Furthermore, all information gained from these data may be used for taking measures to prevent misinformation during a disaster (Yates & Paquette, 2011) or crisis (Ozer, Karpinski & Kirschner, 2014). Comments, reviews or any other messages generated on Youtube.com and Facebook.com have been used to understand the effect of anti-smoking campaigns (Chung, 2015) and this research helped campaigners to direct and promote their campaigns in a more effective way (Link, Cawkwell, Shelley & Sherman, 2015). For businesses the data on social media is like a treasure. Researchers prove that using UGD on social network, it is possible to measure and increase the customer brand loyalty (Luo, Zhang & Liu, 2015), help improve brand innovation (Nguyen, Yu, Melewar & Chen, 2015) and handle strategic behavior. In addition to this, managers may want to learn the effect of UGD on their firm value. This knowledge gained through text mining will help managers understand the ways to increase their firm value (Kim, Koh, Cha & Lee, 2015) or the popularity of their firms. (Zhai et al., 2015), analyzed text data generated by users on social media in order to see if it is possible to quantify and increase the popularity of urban restaurants (Zhai et al., 2015). This kind of researches has been widely done recently on tourism sector by many scholars (Zeng & Gerritsen, 2014; Xiang & Gretzel, 2010). They have used text mining techniques and algorithms to analyze reviews, comments and texts (Munar & Jacobsen, 2014), so they have discovered what travelers like, dislike or hate and so on (Chung, Lee & Han, 2015; AlKahtani, Xia, Veenendaaland, Caulfield & Hughes, 2015; Li, Law, Vu, Rong & Zhao, 2015). These

studies show that text data or user generated data available on the Internet may be helpful for different purposes if they are organized, processed and analyzed in a proper way (Christou, 2015).

### Analyzing Leaders' Speeches and Its Influence on Organizational Behavior

#### Data Collection

The method of factor analysis, which was the basis for Cattell's research has been the tool of many other personality researchers. The grand Scope of Cattell's vision—that of proposing an empirically supported model of trait that could encompass the full spectrum of personality—has been again captured in more recent model: The big five (Cloninger, 2013).

The data used for this study have been produced from two different sources. One part of data has been collected from universities annual reports and turned into a table. 157 universities in Turkey have been examined for the study. After manually reading the reports some key features have been extracted. These key features are; Total Papers and proceedings, Total Citation on papers and proceedings, number of PhD students graduated, Number of students per Professor, Number of international students, number of students visited universities abroad in the framework of ERASMUS or FARABI programs.

All these parameters have been normalized with number of students and number of professors teaching at the university. The average of these parameters has been used as the total score for each university. Thus, the highest score is 767.35 and minimum university score is 69.76. The average score is 403.8 and standard deviation is 148.3.

The second part of the data has been developed from universities web pages. Each university's web page has been visited to get either rectors address to students or university's vision and mission which is thought to be written top management of the university. We primarily used rectors addresses but in some cases there were not such a text on the university web site so, we used vision and mission statements. All files converted into separate text files, after that, text files have been converted into a text data warehouse. For this purpose, suffixes, prefixes, punctuation marks, numbers, prepositions, linking words and no-meaning words have been removed.

#### METHOD AND MODEL

DBSCAN clustering algorithm and Multilayer Perceptron Neural Network model have been used to analyze and compare two data sets. Using both algorithms, data sets have been analyzed and common keywords which placed records (universities) in

the same cluster have been extracted.

Key words have been analyzed semantically to understand around which state of mind or way of thinking universities have been clustered by both algorithms.

#### ANALYSIS AND FINDINGS

Our clustering analysis has yielded 9 clusters. The words and phrases which represent the cluster centers or separating one cluster from another are as follows: Research, Education, Teaching, Science or Scientific Values, to be Most Preferred University, Foreign Language, Masters Degree, PhD Candidates, National Values, Cultural Values, Universal Values, Ethical Values, Sports, Social Activities. We have extracted the key features of those nine clusters. As it is shown in Table-1, university rectors stress different subjects or want to lead his/her students and staff with different words. For example, in cluster number one, university rectors emphasize research education and teaching. As university rectors or top managements of universities in cluster number two only stress education, for universities in cluster three the emphasis is on scientific values, importance of being most preferred university nationwide and importance of universal values. University leaders in cluster number four to eight employ different words and phrases to address students and staff. There are seven universities in cluster number nine that leaders do not use so called cliché words like education, teaching, science etc.

For the analysis we have chosen top 15 and bottom 15 universities and highlighted only 30 universities to see in which cluster they have been placed by clustering algorithms. We can see this in two different columns in Table-1.

As it is clear that university leaders of 2<sup>nd</sup>, 5<sup>th</sup>, 11<sup>th</sup> and 15<sup>th</sup> in ranking stressed only education in their addresses to students and employees. Leaders of universities which are 1<sup>st</sup>, 3<sup>rd</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 10<sup>th</sup> in ranking mostly used words scientific values, to be most preferred university, and praised universal values. So, 9 of top 15 universities fall in cluster number two and three. Only one university is in cluster number five and there are two universities both in cluster number eight and nine.

For university rectors who lead bottom 15 universities, it is totally different. Six of those leaders use words like national values, cultural values, education or only education, while five of them use words teaching, education, social activities and master's degree. Thus, 11 of 15 bottom universities are placed either in cluster number 5 or cluster number eight. None of these university leaders stresses science or scientific values in their messages and only one rector uses the word research in his text.

**TABLE 1**  
**Key Words and Clusters**

Culster No	Key Words and Frequencies	No of Universities in Cluster	Top 15 Universities In Turkey	Bottom 15 Universities in Turkey
1	Research(100%) Education(91%) Teaching (70%)	23		125
2	Education(61%) Science (100%),	39 5	2,5,11,15	133, 122
3	Most Preferred University (100%) Universal Values (80%)		1,3,6, 7,10	
4	Universal Values(100%), Most Preferred(100%), Resarch (80%), Science(80%)	15		
5	Teaching (90%), Education (80%), Social Activities (96%), Master's Degree (70%)	29	12	130, 131, 132, 134, 123
6	Ethical (100%), National Values (100%), Master's Degree (100%)	2		
7	Foreign Language (100%), Education(84%), Teaching (84%), Master's Degree (84%)	6		124
8	National Values (100%), Cultural Values (100%), Education (60%),	30	4,14	129, 128,127, 126, 120, 121
9	Not using key words like education, teaching, science, etc. But only Master's Degree (100%)	7	9,13	
	Total	156	15	15

## CONCLUSION

In this study we examined the web sites of universities in Turkey in order to collect Rectors Message or is not exists, Vision/Mission Statements of the university which represent universities policies, strategies or guiding principles. We analyzed all these text data with text mining tools to cluster universities according to the key words they have used in their messages. We extracted the keywords which represent the cluster centers or the words which separates on cluster from another. These words correspond to the features of the clusters as well.

Meanwhile we have ranked universities on another list. We used parameters like total papers and proceedings, total citation on papers and proceedings, number of PhD students graduated, number of students per professor and so on.

Further on we have chosen 30 universities from the ranked list: 15 from top and 15 from bottom. We overlaid those 30 universi-

ties with 9 clusters. It is seen that most of the universities both from bottom 15 and top 15 fall in the same clusters. Some of the prominent findings are as follows:

Nine of top 15 university rectors use words science, research, education, universal values, in their statements. However none of the universities from bottom 15 utter the words science, research and universal values. University leaders of those bottom 15 universities mostly used words teaching, education, social activities, national values, cultural values.

Here we can say that leaders words have an impact on the policies and strategies of the institutions or leaders in our case rectors give speeches describing the institution she managing. In both ways of understanding we can conclude that rectors statements, prefaces or any other mission/vision statements tell a lot about the polices of the university.

## REFERENCES

- AlKahtani, S. J. H., Xia, J. C., Veenendaaland, B., Caulfield, C., & Hughes, M. (2015). Building a conceptual framework for determining individual differences of accessibility to tourist attractions. *Tourism Management Perspectives*, 16, 28-42.
- Assuncao, M. D., Calheiros, R. N., Bianchi, S., Netto, M. A., & Buyya, R. (2015). Big Data computing and clouds: Trends and future directions. *Journal of Parallel and Distributed Computing*, 79-80, 3-15.
- Buyukyavuz, S. (2015). *Employee motivaton effect of leadership style (Konya health organzations workng as an example)*. Beykent Universitesi, Istanbul, Turkey.
- Christou, E. (2015). Branding social media in the travel industry. *Procedia-Social and Behavioral Sciences*, 175, 607-614.

- Chung, J. E. (2015). Antismoking campaign videos on YouTube and audience response: Application of social media assessment metrics. *Computers in Human Behavior*, *51*, 114-121.
- Chung, N., Lee, S., & Han, H. (2015). Understanding communication types on travel information sharing in social media: A transactive memory systems perspective. *Telematics and Informatics*, *32*(4), 564-575.
- Graham, M. W., Avery, E. J., & Park, S. (2015). The role of social media in local government crisis communications. *Public Relations Review*, *41*(3), 386-394.
- He, W. (2013). Improving user experience with case-based reasoning systems using text mining and Web 2.0. *Expert Systems with Applications*, *40*(2), 500-507.
- Kasemsap, K. (2015). The role of cultural dynamics in the digital age. In B. Christiansen & J. Koeman (Eds.), *Nationalism, cultural indoctrination, and economic prosperity in the digital age*, (pp. 295-312). Hershey, PA: IGI Global.
- Kim, S., Koh, Y., Cha, J., & Lee, S. (2015). Effects of social media on firm value for U.S. restaurant companies. *International Journal of Hospitality Management*, *49*, 40-46.
- Li, G., Law, R., Vu, H. Q., Rong, J., & Zhao, X. R. (2015). Identifying emerging hotel preferences using Emerging Pattern Mining technique. *Tourism Management*, *46*, 311-321.
- Link, A. R., Cawkwell, P. B., Shelley, D. R., & Sherman, S. E. (2015). An exploration of online behaviors and social media use among hookah and electronic-cigarette users. *Addictive Behaviors Reports*, *2*, 37-40.
- Luo, N., Zhang, M., & Liu, W. (2015). The effects of value co-creation practices on building harmonious brand community and achieving brand loyalty on social media in China. *Computers in Human Behavior*, *48*, 492-499.
- Munar, A. M., & Jacobsen, J. K. S. (2014). Motivations for sharing tourism experiences through social media. *Tourism Management*, *43*, 46-54.
- Nguyen, B., Yu, X., Melewar, T. C., & Chen, J. (2015). Brand innovation and social media: Knowledge acquisition from social media, market orientation, and the moderating role of social media strategic capability. *Industrial Marketing Management*, *51*, 11-25.
- Ozer, I., Karpinski, A. C., & Kirschner, P. A. (2014). A cross-cultural qualitative examination of social-networking sites and academic performance. *Procedia-Social and Behavioral Sciences*, *112*, 873-881.
- Premchaiswadi, W., & Romsaiyud, W. (2012). Extracting weblog of Siam University for learning user behavior on MapReduce. Paper presented at *Intelligent and Advanced Systems (ICIAS), 2012 4th International Conference on* (Vol. 1, pp. 149-154). IEEE, Kuala Lumpur, Malaysia.
- Russell, M. A. (2011). *Mining the social web*. Sebastopol, CA: O'Reilly Media.
- Shajan, S. (2015). *Organisational behaviour (WBUT)*. New Dehli, India: Vikas Publishing.
- Xiang, Z., & Gretzel, U. (2010). Role of social media in online travel information search. *Tourism Management*, *31*(2), 179-188.
- Yates, D., & Paquette, S. (2011). Emergency knowledge management and social media technologies: A case study of the 2010 Haitian earthquake. *International Journal of Information Management*, *31*(1), 6-13.
- Zeng, B., & Gerritsen, R. (2014). What do we know about social media in tourism? A review. *Tourism Management Perspectives*, *10*, 27-36.
- Zhai, S., Xu, X., Yang, L., Zhou, M., Zhang, L., & Qiu, B. (2015). Mapping the popularity of urban restaurants using social media data. *Applied Geography*, *63*, 113 -120.

— This article does not have any appendix. —