

Attitudes Towards Knowledge Management of School Administrators and Teachers Working in Turkish Schools

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The aim of this study is to investigate attitudes of school administrators and teachers working in Turkish schools towards knowledge management. In this research, an explanatory design incorporating quantitative and qualitative methods was used. The quantitative strand of the study was designed as a survey model, and the data was collected from 336 school administrators and teachers who work in the province of Sivas by using the Attitude Scale Towards Knowledge Management (Demir, 2005). The qualitative part of the study was carried out using a case study design, and the researchers used semi-structured interviews to collect data from 12 school administrators and teachers who work in the province of Sivas. To interpret the interview data, descriptive analysis, content analysis, and constant comparison techniques were used. The quantitative findings revealed that school administrators and teachers reported positive attitudes towards knowledge management with respect to self-development and negative attitudes towards communication and commitment. and negative attitudes towards communication and commitment. According to the qualitative findings obtained from questions asked to the participants with respect to communication, commitment, and self-development, participants stated that the knowledge management activities that took place at school were insufficient. Consequently, a knowledge management model suitable for Turkish school context is suggested.

L'objectif de cette recherche est d'étudier les attitudes face à la gestion de connaissances qu'ont les administrateurs scolaires et les enseignants dans des écoles turques. Ce projet a employé une conception explicative qui intègre des méthodes quantitatives et qualitatives. La composante quantitative de l'étude a été conçue comme enquête reposant sur l'échelle mesurant l'attitude envers la gestion des connaissances (Demir, 2005) et administrée auprès de 336 administrateurs scolaires et enseignants de la province de Sivas. La composante qualitative de l'étude était basée sur un modèle d'étude de cas dans laquelle les chercheurs ont employé des entrevues semi-structurées pour recueillir des données auprès de 12 administrateurs scolaires et enseignants de la province de Sivas. Des analyses descriptives, des analyses du contenu et des techniques de comparaison constante ont servi dans l'interprétation des données d'entrevue. Les résultats quantitatifs ont révélé que les administrateurs scolaires et les enseignants avaient des attitudes positives face à la gestion des connaissances relativement au développement personnel et des attitudes négatives par rapport à la communication et l'engagement. Les résultats qualitatifs provenant des questions portant sur la communication, l'engagement et le développement personnel indiquent que les participants trouvaient que les activités de gestion des connaissances à l'école étaient insuffisantes. Nous proposons donc un modèle de gestion des connaissances qui convient mieux au contexte des écoles turques.

Knowledge is one of the most important factors concerning institutional power. Muratoğlu (2005) and Kanjere (2010) suggested that powerful communities possess and use knowledge, and Güleş & Çağlayandereli (2012) stated that communities that use knowledge to gain an advantageous position in terms of competition, display a strong structure and have influence in the transformation process.

Change and innovation on a global scale also force organizations to change (Dixon, 1999). Organizations should generate knowledge and share it with other organizations (Demir, 2005; Dowling, Chambreuil, Muller, & Vincent, 1999; Spender, 2008). In this context, knowledge in organizations is a structurally dynamic (Muratoğlu, 2005), hidden capital (Bagshaw, 2000) which is generated and shared by people (Memduhoğlu & Yılmaz, 2010). According to Spender (2008), the creation of knowledge in organizations takes place in four stages: socialization, externalization, internalization, and combination. Accordingly, tacit knowledge becomes explicit through mutual interaction between members of the organization during socialization. As a result of externalization, knowledge is transferred to the outside. Through internalization, members of the organization convert explicit knowledge into tacit knowledge. At the end of the process of combination, knowledge taken from the outside is synthesized and new knowledge is generated. This new knowledge should be managed well and offered to employees for use. In this context, knowledge can be said to be a commodity that should be managed.

The concept of knowledge management emerged in the 1980s and 1990s (Kock, McQueen, & Baker, 1996) as a theoretical and practical counterpart of the requirements created by the knowledge age (Demir, 2003) in order to constantly obtain and manage knowledge and renew individuals and organizations (Bejinaru & Lordache, 2011). Knowledge management processes emerge with different classifications in the literature. Although they are expressed in different forms, they discuss similar cases. Accordingly, acquisition, classification, transfer, and storage of knowledge for use are expressed as knowledge management processes (Edge, 2013; Lawson, 2003; Omerzel, Biloslavo, & Trnavcevic, 2011; Pillania, 2007; Stevenson, 2000).

The purpose of knowledge management is to facilitate organizational success (Demir, 2003). Organizational values and behavioral norms affecting knowledge management processes are self-development activities carried out using knowledge obtained and communication systems that ensure dissemination of knowledge (Demir, 2005). In light of these cases, organizations create their own knowledge maps by setting up knowledge management systems and ensuring that knowledge becomes useful to the organization (Güçlü & Sotirofski, 2006). In addition, knowledge management facilitates learning and contributes to the unification of individual and organizational goals (Akkoç, 2008) and makes it easier for individuals to do their part (Stromgoist & Samoff, 2000). In this context, educational institutions, which are among the most important organizations involved in an intensive knowledge generation process, should be capable of generating, sharing, and storing knowledge in organizational memory to reuse it where necessary (Lawson, 2003).

Schools ensure that a society continues to exist, carrying culture into the future (Balay, 2004). As such, schools have to improve and renew themselves constantly. This is directly associated with the acquisition and utilization of knowledge (Güçlü & Türkoğlu, 2003; Stromgoist & Samoff, 2000). In this context, schools, whose basic function is teaching and are involved in a constant flow of knowledge, can be said to have a responsibility to manage knowledge well (Muratoğlu, 2005; Öztürk, 2009).

It is important that schools take into account knowledge management in order to be successful (Memduhoğlu & Yılmaz, 2010). It is essential that informal structures in schools are harmonized with formal structures of the school, so that the knowledge generation capacity of the schools are up-to-date and active. Teams created using class and branch teachers who are experts in various fields have a high capacity for generating knowledge (Tiltay, 2009). Therefore, the requirement for qualified individuals who can access knowledge, utilize knowledge, generate new knowledge, and appropriate knowledge for the whole organization has become pronounced (Ağır, 2005). In addition to school administrators' attitudes towards knowledge management, teachers should be inquisitive, have a constant desire to learn, generate knowledge (Üzüm, 2009), and make knowledge sharing a part of the school culture (Korkmaz, 2008). They should also ensure that knowledge is communicated (Fang, Yang, Tsai, Wang, & Lee, 2007; Kidwell, Vander, & Johnson, 2000; Stromgoist & Samoff, 2000).

Considering the relevant literature, knowledge management has been the subject of investigation mostly in business organizations. There is little research on knowledge management in educational institutions (Lee, Lu, Yang, & Hou, 2010). Examples of research related to knowledge management in business organizations include: Azmi, 2010; Davenport, David, and Beers, 1998; Gold, Malhotra, and Segars, 2001; Gordon and Grant, 2013; Lee and Choi, 2003; Liao and Wu, 2010; Liu, 2011; Sambamurthy and Subramani, 2005; Sedera and Gable, 2010; Zack, McKeen, and Singh, 2009. Examples of research related to knowledge management in educational organizations include: Alqudsi-ghabra, 2007; Bostancı and Şap, 2010; Dağlı, Silman, and Birol, 2009; Hossain, Ouedraogo, and Rezanian, 2013. In this context, the aim of this study is to investigate attitudes of school administrators and teachers working in Turkish schools towards knowledge management. The study is distinguishable from similar studies on knowledge management in that qualitative and quantitative research methods are used together.

Method

Research Model

The study was designed using mixed methods. According to Hammersley (2003), data obtained from qualitative research can be demonstrated using quantitative features. The issue is creating an appropriate and clear level of data disclosure, rather than numbers or statistical statements and words or verbal expressions. In other words, data should be straightforward regardless of how it is expressed (Ekiz, 2013). Mixed methods is preferred because it is capable of combining qualitative and quantitative research, minimizing the limitations of both approaches (Creswell, 2013).

When using a combination of quantitative and qualitative research techniques, three designs can be utilized: triangulation, explanatory, and exploratory designs. In a triangulation design, qualitative and quantitative data sets are collected together and analyzed for whether they are consistent or not. In an explanatory design, quantitative data is collected first and then a qualitative study is undertaken to assist in interpreting this data. In an exploratory design, a qualitative data set is collected first and then a quantitative study is undertaken on the basis of this data (Fraenkel & Wallen, 2006). Accordingly, this research followed an explanatory design. This mixed methods approach allowed for the acquisition of comprehensive and in-depth information on the subject and for reliable and trustworthy conclusions to be reached.

Quantitative method. The quantitative part of the study was designed using a survey. According to Karasar (2011), a survey is a research approach that aims to depict a past or current situation in the way it exists. The thing, individual, or the object that is covered by the research is sought to be defined according to its own conditions and as it is. There is no attempt to change or influence it in any manner. In this context, the attitudes of primary school administrators and teachers towards knowledge management were analyzed with respect to variables, which included gender, type of school, and position.

Qualitative method. In the qualitative strand of the study, a case study design was used. The purpose of a qualitative case study is to set forth results regarding a particular case, collect data using in-depth interviews, and conduct an in-depth and dimensional examination of collected documentation through analysis (Yıldırım & Şimşek, 2011). In this context, participants' beliefs about knowledge management were examined through open-ended questions.

Study Group

Quantitative method. The population of the study was comprised of school administrators and teachers working in primary and secondary schools in Zara, Hafik, and İmranlı, the towns in the province of Sivas, attached to the Ministry of National Education. As of September, 2012, the number of teachers and administrators working in the towns were 367. Due to the response rate, 336 people were included in the study and the distribution of teachers and administrators by gender, position, school type are as follows: 160 females, 176 males; 281 teachers, 55 administrators; 14 served at preschool institutions, 208 served at primary schools, and 114 served at high schools.

Qualitative method. Maximum variation sampling, a purposive sampling method, was used in the qualitative strand of the study. This sampling method involved creating a relatively small sample reflecting the diversity of individuals who may pertain to the studied problem at a maximum level (Yıldırım & Şimşek, 2011). In this context, teachers and administrators engaged in knowledge management were sampled. Accordingly, position, school type, and gender criteria were used in the qualitative part of the study and taken into account while determining the participants to be sampled and interviewed. This enabled a comparison of the results obtained by quantitative and qualitative analyses and allowed for a common assessment. As seen in Table 1, the interview participants were six school administrators and six teachers, six of whom were females and six of whom were males, and six of whom worked in primary schools and six of whom worked in high schools.

Data Collection Tools

Quantitative method. In the present study, Demir's (2005) Attitude Scale for Knowledge Management was administered. This is a fully validated attitude scale with 22 five-point Likert items. In order to develop this scale, Demir reviewed literature and produced a 56-item initial questionnaire that was composed of five-point Likert items. As part of the first step of the validation process, expert opinion was sought with regard to comprehensiveness and representativeness of the items. In line with their feedback, some of the items were revised, others were removed, and new items were added; thus a 40-item draft scale was created. Of these 40 sentences, 18 indicated a negative attitude, while 22 indicated a positive one. Options

Table 1

Participants' Characteristics by School Type, Gender, and Position

	School Type	Gender	Position
Participant 1	Primary School	Female	School Administrator
Participant 2	High School	Female	Teacher
Participant 3	Primary School	Male	Teacher
Participant 4	Primary School	Female	Teacher
Participant 5	High School	Male	School Administrator
Participant 6	Primary School	Male	Teacher
Participant 7	High School	Female	Teacher
Participant 8	Primary School	Female	School Administrator
Participant 9	High School	Female	Teacher
Participant 10	Primary School	Male	School Administrator
Participant 11	High School	Male	School Administrator
Participant 12	High School	Male	School Administrator

and scores of the items were as follows: 5 = I totally agree, 4 = I agree, 3 = I neither agree nor disagree, 2 = I disagree, and 1 = I totally disagree. A high score on the scale indicated a positive attitude towards knowledge management whereas a low score implied a negative one.

A factor analysis was performed for the construct validity of the scale and a Cronbach's alpha analysis was used to determine internal reliability. In this context, a factor analysis was carried out in order to test construct validity of the draft form of the data collection tool. The draft form was administered to 171 senior students. Then, the participants were asked to respond to 40 attitude statements on knowledge management. For factor structure of the scale the varimax vertical rotation technique was used. 18 items with factor loadings lower than .40 were removed from the scale as a result of the analysis. Another factor analysis was repeated on the remaining 22 items. As a result of the second factor analysis, it was observed that the items in the scale clustered under three factors; factor loadings of the items were in the range of .40 to .81 with total correlation of the items varying between .31 and .67. Eight items were found to gather under the first factor, seven under the second, and seven under the third. Considering the characteristics of the items they contained, the three factors determined were labelled as *self-development*, *communication*, and *commitment*. In the scale consisting of 22 items in total, 13 items reflected positive attitudes and nine items reflected negative attitudes. Table 2 presents the explained variance ratios and Cronbach alpha internal consistency coefficients and *t* values of the attitude scale towards knowledge management.

The factor analysis indicated that the three factors mentioned above accounted for 39.59% of total variance. In this context, total variance explained by the scale seems to be adequate. Cronbach alpha internal reliability coefficient was used to calculate the internal reliability of the scale. As a result of this analysis, alpha coefficients for self-development, communication, and commitment subscales were .80, .74, and .66 respectively, and overall the Cronbach alpha coefficient was .79. The scale was considered to have internal consistency based on the obtained values. When the responses to the factors of respondents who are outside a standard deviation limit of ± 0.5 were compared by independent samples *t* test, all differences observed in favor

Table 2

Explained Variance Ratios and Alpha Internal Consistency Coefficients and t Values of the Attitude Scale Towards Knowledge Management

Factor	Explained Variance Ratio	α	t
Self-development	15.543	.80	24.68*
Communication	12.543	.74	27.14*
Commitment	11.506	.66	16.44*
Total	39.592	.79	

* $p < .05$

of the top group were found to be significant. As a result of the analyses, the researcher developed a reliable and valid 22-item scale with three factors measuring the attitudes towards knowledge management (Demir, 2005). Examples of items in the scale are given in Table 3.

Qualitative method. In the qualitative part of the study, a semi-structured interview form comprising of open-ended questions was employed. The basic feature of qualitative research is to evaluate the subject according to the perspectives of participants (Kuş, 2012). Within this context, we asked open-ended questions to the participants, which allowed us to obtain unexpected or unplanned answers in the research process and to gain more extensive and detailed information on the subject (Büyüköztürk, Çakmak, Akgün, & Demirel, 2012). In the semi-structured interviews, we prepared the interview questions in advance which enabled us the flexibility to rearrange the questions asked to an interviewee(s) during the interview (Patton, 2002).

Interview questions were prepared by taking account of the attitude scale towards knowledge management used in the quantitative part of the study and subscales of the scale. The questions in the qualitative part were prepared according to the contents of the quantitative measurement tool so that the quantitative and qualitative findings obtained could be compared and appraised. Associate Professor Celal Teyyar Uğurlu, an expert in the field of educational sciences, appraised the draft interview questions and Assistant Professor Selçuk Beşir Demir, an expert on qualitative research methods, thoroughly reviewed the interview questions. Based on the feedback from these respective experts, the interview questions were revised. Then, two Turkish language teachers reviewed and revised incomprehensible or obscure questions. One of the researchers performed a pilot study with two teachers and two administrators, who were not among the participants, to determine the quality and adequacy of the interview questions. As a result of this pilot implementation, questions which the teachers and administrators found hard

Table 3

Examples of Items in the Attitude Scale Towards Knowledge Management

Respect shown for my knowledge makes me happy.

I would like to be able to use my skills.

I think the experiences of others are informative.

I learn from past experiences.

I would like to have a say in my job in the future.

I would like to support people around me.

to understand were revised. The final form of the interview questions emerged as a result of all these implementations. In this study, the participants were asked all of the interview questions. However, based on the responses the participants were also asked follow-up questions in order to carry out an in-depth analysis of the responses.

The participants were asked the following questions: (1) What does the concept of knowledge management mean to you? (2) Does knowledge management contribute to the personal development process of employees? How does it do so? (3) Is knowledge management affected by communication processes between employees? How? (4) Is knowledge management affected by employees' level of organizational commitment? How is it affected? A subject-oriented interview method was used to collect qualitative data because it focuses on a schedule, subject, or process, rather than on the lives of the individuals. The participants were informed about the interview, then appointments were made with each of them, and interviews were conducted in a quiet environment at their schools.

Data Analysis

Quantitative method. The Kolmogorov-Smirnov test and the Skewness-Kurtosis test were carried out to determine whether the obtained data showed normal distribution. According to Seçer (2013), a p value above .05 in the Kolmogorov-Smirnov test indicates a normal distribution, whereas a value below .05 indicates a non-normal distribution. From the Kolmogorov-Smirnov test results of the attitude scale towards knowledge management, it was seen that the scores on self-development ($z = 0.012$; $p < .05$), communication ($z = 0.041$; $p < .05$), and commitment ($z = 0.035$; $p < .05$) subscales did not show a normal distribution. The Skewness-Kurtosis test was used to analyze the Kurtosis and Skewness values of the distribution. According to Seçer (2013), a Skewness range of +1 to -1 and a Kurtosis range of +2 and -1 are normal distribution. From these test results, it emerged that Skewness and Kurtosis values of self-development (-2.232; 8.129), communication (-3.152; 3.756), and commitment (-4.321; -5.245) subscales also did not show a normal distribution. Based on these results, Kruskal-Wallis and Mann Whitney-U tests were used to analyze the attitude scale towards knowledge management.

Moreover, general arithmetic mean and standard deviations of the scale and its subscales were included in the study to determine school administrators' and teachers' general level of attitude towards knowledge management. Data were analyzed using the SPSS (Version 18) software package. In order to facilitate the interpretation of the arithmetic means obtained as a result of the quantitative analyses, the ranges of arithmetic means corresponding to the options (i.e., I totally disagree, I disagree, I neither agree nor disagree, I agree, and I totally agree) in the scale were calculated. To specify which range the resulting arithmetic corresponds to, specified score ranges based on a Score Range Coded by Options (SRCO) are given in Table 4.

Table 4

Score Range Coded By Options (SRCO)

I totally disagree	1.00-1.79
I disagree	1.80-2.59
I cannot decide	2.60-3.39
I agree	3.40-4.19
I totally agree	4.20-5.00

Qualitative method. All of the interviews conducted face-to-face with the participants were recorded using a voice recorder with the informed consent of participants. According to Sanders (1982), in-depth, semi-structured oral interviews should be carried out with individuals and these should be recorded and analyzed because researchers would be unable to pay attention to the interview while taking notes. After the interviews, the recorded data were transcribed into text and these transcripts were then read over before the data were coded. Once the data were coded, descriptive analysis, content analysis, and constant comparison techniques were used to interpret the data.

Content analysis is the systematic analysis of written and verbal materials. Content analysis can be defined as the process in which what people say and write is quantified-numerated by coding it according to open instructions. On the basis of this approach lies categorization and classification of those written and said by the respondents in this research (Simon & Burstein, 1985). Descriptive analysis is the presentation to the reader of the collected data without any action taken. Here, the researcher is prevented from interpreting the data and showing them differently from what they really are. The presentation of data as they are and in a clear, understandable way may also be required to ensure impartiality (Sönmez & Alacapınar, 2011). In a constant comparison analysis, data are not analyzed according to pre-arranged categories. First, data are obtained and then categorized. In this research method, data are constantly compared. Where there is no more similarity or features containing similar meaning, new categories should be created and the data should be placed in those categories (Strauss & Corbin, 2006). For this purpose, the data were analyzed in four stages: (1) Coding data, (2) Finding themes, (3) Arranging codes and themes, and (4) Defining and interpreting findings. In the first stage, the coding process was completed according to the codes obtained from the data by taking into account how the answers of the participants could be divided into parts in the form of meaningful wholes, how these meaningful wholes would be coded, and whether the data in these different parts could be arranged using similar codes. Based on the resulting codes, themes that could explain the data on a general level and specified categories were found (Yıldırım & Şimşek, 2011). Each researcher followed the same process, and codes and themes emerged in line with the common opinions of the two researchers. These codes and themes were arranged and the resulting findings were defined and interpreted. Furthermore, in the descriptive analysis, direct quotations were frequently given in order to reflect the opinions of the interviewees.

Validation of the qualitative data. In the qualitative section of this research, it was more appropriate to use concepts of credibility, transferability, consistency, and verifiability instead of the concepts of reliability and validity. The concepts of validity and reliability are specific to quantitative research and are in conflict with the basic principles and fundamental paradigm of qualitative research (Mills, 2003).

Credibility (internal validity). To increase the credibility or internal validity of the study, the relevant literature was examined and a conceptual framework on the subject was established while developing the interview questions. Following the interview, the responses of the interviewees were written down and the respondents were asked to verify written transcripts and confirm that they were their actual opinions. In the study, attention was paid to ensuring that the themes obtained during the stage of content analysis were wide enough to cover all relevant concepts and narrow enough to exclude irrelevant concepts. These themes and correlations between the categories making up the themes were checked and efforts were made to ensure integrity among the findings. During the application process of the study, all of the

interviews were recorded using a voice recorder. The researchers paid attention to being as objective as possible in all stages of the study.

Transferability (external validity). To increase the transferability of the study, each stage of the study was presented to the reader in a detailed manner. The researchers wrote the research report in a detailed manner and made detailed descriptions in the findings section because they wanted to allow the reader opportunities to visualize all elements of the research process. Therefore, direct quotations were included in the findings and comments section and the descriptive data collected could be transferred to study groups in similar contexts. The results obtained in this study should be understood in the same way or in a similar way by those who read the research. In this context, the researchers summarized the descriptions related to the research in a simple and understandable manner so that the readers could visualize the research process and the research environment.

Consistency (internal reliability). In order to increase the consistency or internal reliability of the study, the findings of the study were directly presented to the reader without making any interpretations or generalizations. All of the data obtained from the study were evaluated by another researcher and separately coded, and a general consensus was ensured among all the codings. Consistency of codes used independently by the two researchers were identified by marking them as *Consensus* or *Dissidence*. The reliability formula [Reliability = Consensus / (Consensus + Dissidence)] (Miles & Huberman, 1994) was used to calculate reliability of all codings. During the calculation of reliability for each question, a result between 87% and 98% was obtained.

Confirmability (external reliability). In order to ensure the confirmability or external reliability of the study, the researchers retained the raw data and codings obtained during the process so that those interested could examine them.

Findings

Quantitative Results

In Table 5, school administrators' and teachers' attitudes concerning the dimensions of self-development, communication, commitment, and the sum of knowledge management are reported. Arithmetic mean, standard deviation values, and SRCO are tabulated. Respondents evaluated the self-development dimension as *I totally agree*, the communication dimension as *I disagree*, the commitment dimension as *I cannot decide*, and the attitude scale for knowledge management as *I agree* in total. When evaluated in this context, respondents' attitude scores concerning knowledge management were listed as self-development, commitment, knowledge management (total), and communication in decreasing order from higher to lower levels, which suggests that respondents' attitudes concerning self-development, commitment, and communication were positive at a high, medium, and low level, respectively. The total score obtained from the attitude scale for knowledge management was at the level of *I agree*, which indicates that respondents' attitudes towards knowledge management were at a positive level overall.

Table 6 shows respondents' attitudes toward knowledge management by position. There was no significant difference in self-development ($U = 7433.500$, $p > .05$) and communication ($U = 7346.000$, $p > .05$) subscales, however there was a significant difference in favor of the teachers in the commitment subscale ($U = 5739.000$, $p > .05$). According to Demir (2005), employees'

Table 5

Distribution of Respondents' Attitudes towards Knowledge Management

Knowledge Management	\bar{x}	SD	SRCO
Self-development	4.61	0.41	I totally agree
Communication	2.51	0.69	I disagree
Commitment	3.21	0.39	I cannot decide
Total	3.44	0.53	I agree

Note. $N = 336$

Table 6

Mann Whitney-U Test Results of Respondents' Attitudes Toward Knowledge Management by Position

	Position	\bar{x}	Rank Total	U	* p
Self-development	Administrator ^a	163.15	8973.5	7433.5	0.649
	Teacher ^b	169.55	47642.5		
Communication	Administrator	175.44	9649.5	7346.0	0.561
	Teacher	167.14	46967.0		
Commitment	Administrator	132.35	7279.0	5739.0	0.002
	Teacher	175.58	49337.0		

Note. ^a $n = 54$, ^b $n = 282$ * $p < .05$

attitudes towards organizational values and behavioral norms, which affect the success of knowledge management practices, have an influence on the level and rate of adoption of knowledge management. When considered in this context, Turkish school teachers adopt knowledge management practices within schools to a greater extent than administrators. These attitudes are likely a result of the managerial competence of the Turkish school administrators because school management is not considered a profession in the Turkish Education System and management is defined as a second task of the teachers. Therefore, in the Turkish education system, areas of competence relating to the appointment of administrators are not specified and such appointments are made based on political criteria. When considered in this context, teachers were found to adopt knowledge management to a greater extent than administrators, suggesting that the competence of the administrators serving in the Turkish education system should be questioned.

In Table 7 the respondents' attitudes toward knowledge management by gender variable are shown. There was no significant difference noted by gender variable between school administrators and teachers in self-development ($U = 12648.500$ $p > .05$), communication ($U = 13765.500$, $p > .05$), and commitment subscales ($U = 13291.50$ $p > .05$). This suggests that the gender does not influence teachers' and administrators' attitudes towards knowledge management.

In the analysis of the respondents' attitudes toward knowledge management by the school type variable, significant differences were found in self-development [$\chi^2(2) = 12.016$, $p < .05$] and commitment subscales [$\chi^2(2) = 15.574$, $p < .05$]. According to these findings, the attitude scores on self-development and commitment subscales decreased in order from preschool,

Table 7

Mann Whitney-U Test Results of Respondents' Attitudes Toward Knowledge Management by Gender Variable

	Gender	\bar{x}	Rank Total	<i>U</i>	* <i>p</i>
Self-development	Female ^a	177.45	28391.5	12648.5	0.112
	Male ^b	160.37	28224.5		
Communication	Female	166.53	26645.5	13765.5	0.723
	Male	170.29	29970.5		
Commitment	Female	173.43	27749.0	13291.0	0.369
	Male	164.02	28867.0		

Note. ^a*n* = 160, ^b*n* = 176, **p* < .05

primary school, and high school.

For the self-development subscale, no significant difference was found between preschool institutions and primary schools, however there was a significant difference established in favor of preschool institutions and primary schools over high schools. These findings suggest that respondents serving in preschool institutions and primary schools develop themselves more than high school respondents and thus adopt knowledge management to a greater extent. This is likely because the students' level of development and requirements are distinct for each context.

For the commitment subscale, no significant correlation was established between preschool institutions and primary schools. However, a significant difference was once again found in favor of preschool institutions and primary schools over high schools. These findings suggest that respondents serving in preschool institutions and primary schools are more strongly committed to their schools and thus adopt knowledge management to a greater extent.

Table 8

Kruskal-Wallis Test Results of Respondents' Attitudes Towards Knowledge Management by School Type

Knowledge Management	School Type	<i>M</i>	<i>SD</i>	χ^2	* <i>p</i>	Significant Difference
Self-development	Pre-School ^a	206.11	2	12.016	0.002	(1-2)
	Primary School ^b	179.20				(1-3)
	High School ^c	144.67				(2-3)
Communication	Pre-School	139.96	2	2.900	0.235	--
	Primary School	164.61				
	High School	178.98				
Commitment	Pre-School	206.39	2	15.574	0.000	(1-2)
	Primary School	181.40				(1-3)
	High School	140.67				(2-3)

Note. *N* = 336, ^a*n* = 14, ^b*n* = 207, ^c*n* = 115 **p* < .05

Qualitative Results

Explaining the concept of knowledge management. While explaining the concept of knowledge management, the participants focused on the importance of knowledge, in terms of developments in the knowledge age, knowledge as the most important power, the process of acquisition and use of knowledge, sharing knowledge, elicitation of new knowledge, and the responsibility to disseminate knowledge to schools. The most common expression to explain knowledge management was *knowledge should be shared* (12 participants), while the least common was *knowledge should be used appropriately* (3 participants).

On this matter, participant (P) 4 said, “Knowledge is today’s most important tool. Countries which give importance to knowledge rule the world today.” Participant 8 and P2 stated that knowledge had to be perceived as a source of power and had to be used appropriately. Participant 5 and P9 had the opinion that knowledge increases as it is shared, while P10 emphasized that people should not be mean in the case of sharing of knowledge in this context. Participant 1, P3, and P11 stated that when it comes to knowledge management, schools are mostly responsible for disseminating knowledge and they should fulfill this responsibility, while P12 said, “Schools have a mission to disseminate knowledge. School administrators and teachers should improve themselves by taking necessary actions in order to fulfill this mission.”

Participant 6 mostly used negative statements on knowledge management. According to him, the world becomes more unlivable as people acquire knowledge and the power gained by knowledge is used to increase injustices worldwide. Additionally, P6 highlighted that those who possess and manage knowledge should be nature-loving, decent, and fair people.

Opinions on self-development activities. All of the participants had the opinion that knowledge should be effectively used during the process of self-development. The participants emphasized that development is possible through knowledge on an individual or corporate level. They stated that employees should be provided with an environment conducive to the acquisition and use of knowledge, and that the technological infrastructure in schools should be sufficient. However, a majority of participants (10 out of 12) stated that self-development activities were not adequately included in the process of knowledge management.

On this matter, the participants stated that the schools do not satisfactorily use knowledge for self-development, and that there are problems in the acquisition of new knowledge and its transfer into improvement of the schools. Participant 8 said, “There is no positive activity in schools on acquisition of knowledge and improving the employees using new knowledge. If we are given the opportunity on this matter, of course we want to improve ourselves.” Participant 11 stated his opinion as, “When it comes to acquiring and using knowledge on a personal level in the school, I can only recall routine meetings. We talk about the school and the students during these meetings but these meetings do not have any contribution to our development.” Participant 3 said, “When it comes to self-development, sharing of knowledge by qualified and expert people comes to my mind... Such people who will contribute to our development in the sense of education-teaching should come to the schools, but this is impossible.” Participant 8 and P6 stated that they tried to provide their self-development using sources acquired from outside the school, rather than in the school.

In contrast to the other participants, P4 and P12 stated that the acquisition of knowledge in the sense of self-development was a personal effort and it was not right to expect anything from the school in this sense. On this matter P4 said, “It is very easy to access knowledge for someone who wants to improve himself. Technological advances are providing me with enough

knowledge flow on this matter. In this sense, I don't expect anything from the school. What matters is your ability to transfer the knowledge you've acquired to your professional responsibilities. If this happens, the school also improves with our efforts." Participant 12 stated that the teachers had sufficient levels of education regarding acquisition and use of knowledge. Thus, teachers could contribute to their own self-development.

Opinions on communication activities. All of the participants expressed a common opinion that the primary condition of efficient and successful operations in an organization is open communication channels. Participants noted that the knowledge acquired should be shared regardless of its source and highlighted the contribution of sharing knowledge to corporate development. They also expressed that efficient communication processes between teachers could be assured with activities that included conferences, seminars, and in-service training, and teachers should be in contact with environmental factors such as social and economic changes outside of the school. However, a majority of participants (9 out of 12) noted that the level of sharing knowledge in schools was unsatisfactory and no communication could be ensured between teachers in this sense.

On this matter, the participants stated that teachers were reluctant to share their knowledge with their colleagues and that current issues were mostly discussed in the staff room. Participant 2 and P9 noted that there was a meaningless competition between teachers and this prevented new methods and techniques from being shared, and teachers hesitated to transfer their professional knowledge to each other. Participant 8 stated:

There are four third-grades in our school. So there are four teachers who teach the same grade. We, as teachers of the 3rd grade, are responsible for practicing the same curriculum, but we use different methods and techniques in the stages of interpretation and implementation. We are qualified and talented in various fields. We should share our practices and knowledge with each other, but no one wants to do this. We incidentally become aware of each other's work. Our failure to communicate on this matter adversely affects our students and the success of the school.

Similarly, P5 said:

As teachers working in the same school, we are somewhat the passengers travelling in the same boat. We all aim to float this boat. However, the fact that some of our friends wish to bring personal success to the forefront endangers unity and solidarity in the boat.

Unlike the other participants, P4, P1, and P12 stated that they had no problems sharing knowledge at school, and that school administrators often helped them share knowledge. Participant 1 said, "As teachers serving on the same branch [division] we sometimes hold community meetings. We share all of our practices during these meetings. As we share, our self-confidence grows and we begin to rely on each other more." Participant 4 and P12 stated that there was a school administrator who ensured that the teachers worked together in their school and that they could directly communicate with each other and share their experiences with the school administrator.

Opinions on organizational commitment. All of the participants agreed that organizational commitment is an important value in the functioning of the school. The participants stated that those employees with a high level of organizational commitment could act together by uniting around a common goal, they could put effort around common values for

the development of the organization, and those individuals with high organizational commitments could share in every field, including knowledge. They also emphasized that they should come together in formal and informal environments in order to ensure organizational commitment and that school administrators have important responsibilities on this issue. However, the majority of participants (8 out of 12) suggested that the education personnel's level of organizational commitment was not satisfactory.

The participants stated that the personnel's level of organizational commitment in schools was low for various reasons and suggested that this negatively affected the sharing of knowledge. Participant 9, P3, and P6 stated that teaching was perceived as a profession with low status in Turkey and they have problems attaining personal rights such as higher salary and social status. They also thought that these problems in turn negatively affected their commitment to the school, so they did not feel that they belonged to the school and their motivation was low regarding sharing knowledge. Participant 2 said:

Firstly, we need to be valued. We want to feel special in the school environment. But education policies as well as parents' attitudes alienate us from the profession and the school. Other than work, I don't want to spend time at school. So, after classes, I immediately leave the school and I am reluctant to share anything in an environment where I don't feel well.

Similarly, P9 said:

Before knowledge management, studies on commitment to school should be conducted. Because I look at my colleagues and see that they do not show necessary interest and attention to their school. It doesn't seem possible to acquire and share knowledge in this environment.

Unlike the other participants, P1, P12, P4, and P7 stated that organizational commitment was strong in their schools and that teachers and administrators frequently came together in informal environments and exchanged ideas for the development of the school. Participant 4 commented:

We, as school personnel, come together on certain days of the week and share things. We discuss important projects and practices concerning our school mostly in this type of informal settings. Then, we fully develop such knowledge we have shared, in the school environment. This also positively affects our commitment to school.

Discussion

It is useful to begin to this section using the responses to the open-ended questions posed to the participants to help explain the concept of knowledge management. While explaining the concept of knowledge management, the participants discussed the importance of knowledge, developments in the knowledge age, knowledge as the most important power, the process of the acquisition and use of knowledge, sharing knowledge, elicitation of new knowledge, and the responsibility to disseminate knowledge of schools. Statements similar to these can also be found in the literature. Accordingly, knowledge management is considered a global tool used to create a sustainable competitive environment (Pillania, 2007). Educational organizations are dynamic, complex, social organisms (Coppieters, 2005) that train people who can manage knowledge (Cheng, 2013), encourage the sharing of innovative practices (Edge, 2013), acquire

and generate knowledge (Stukalina, 2008), and are based on knowledge (Özmen & Muratoglu, 2010). In addition, the most common expression used by the participants to explain knowledge management was *knowledge should be shared* (12 participants), while the least common was *knowledge should be used appropriately* (three participants). The participants used the statement *knowledge should be shared* the most, which might suggest that knowledge is not shared adequately in Turkish schools. Issues on knowledge sharing can be associated with the lack of effective strategies and models on knowledge management in the Turkish education system. Strategies and models required by the Turkish education system could be developed if the teachers and administrators united around a common vision for knowledge management.

It appears that school administrators' and teachers' attitudes towards knowledge management and its sub-dimensions are at the level of *I totally agree* in the case of self-development, *I disagree* in the case of communication, *I cannot decide* in the case of commitment, and *I agree* in total. This suggests that respondents' attitudes concerning self-development, commitment, and communication were positive at high, medium, and low levels respectively. The total score obtained from the Attitude Scale Towards Knowledge Management was at the level of *I agree*, which can be interpreted as respondents' attitudes towards knowledge management were positive. Studies conducted on knowledge management practices at schools were reported in the relevant literature and included positive findings stating that knowledge management practices are at a satisfactory level (Bostancı & Şap, 2010; Dağlı & Uzunboylu, 2007; Memişoğlu & Özsarıkamış, 2009; Muratoğlu, 2005), as well as negative findings stating that knowledge management practices were at an unsatisfactory level (Abdullah & Talib, 2012; Dağlı et al., 2009; Hou, Sung, & Chang, 2009; Özmen & Muratoğlu, 2010). Accordingly, the results of this study partially correspond to the existing literature.

By the respondent's position, there was no significant difference in the respondents' attitudes regarding self-development and communication subscales, but there was a significant difference in favor of the teachers in the commitment subscale. According to Demir (2005), employees' attitudes towards organizational values and behavioral norms, which affect the success of knowledge management practices, have an influence on the level and rate of adoption of knowledge management. In this regard, Turkish school teachers adopted knowledge management practices within schools to a greater extent than the administrators, suggesting that the competence of the administrators serving in the Turkish education system should be questioned. Administrators are expected to have an influence on teachers in terms of the competencies they have. As such, if the information management capabilities of administrators were less than the information management capabilities of the teachers, then the administrators would not be able to lead the teachers forth.

By school type, the respondents' attitudes regarding self-development and commitment showed significant differences. Significant differences were discovered in favor of preschool institutions and primary schools over high schools. Accordingly, the organizational commitment and self-development levels of the respondents who work in pre-school institutions and primary schools are higher than those of the respondents who work in high schools. When evaluated in this context, it can be said that the respondents working in pre-school institutions and primary schools whose organizational commitment and self-development levels are higher than those of the respondents working in high schools are more capable in knowledge management.

There was no significant difference revealed by the gender variable. In the literature, various studies on knowledge management (Bostancı & Şap, 2010; Dağlı & Uzunboylu, 2007; Memişoğlu & Özsarıkamış, 2009; Ozmen & Muratoğlu, 2010) reported differences with respect

to position, gender, seniority, and school type variables. However, tools for measuring knowledge management in the foregoing studies were different from the measurement tool employed in this study so it was not possible to make a more detailed comparison. Furthermore, no significant data associated with the variables analyzed in the quantitative findings were found in the qualitative findings of the study.

In the qualitative strand of the study, participants felt that communication between the school's stakeholders, the level of organizational commitment of the school's stakeholders, and the self-development activities performed by the school's stakeholders were unsatisfactory. Ten of the 12 participants stated that self-development activities were not adequately included, nine participants stated that communication in the sharing of knowledge was unsatisfactory, and eight participants stated that the level of organizational commitment was low. The fact that the participants felt that self-development activities were insufficient demonstrates that the teachers serving in Turkish schools cannot effectively utilize knowledge for self-development. Based on the negative responses revealed on communication processes, the participants had problems sharing knowledge. The participants' failure to adequately commit to their schools prevented knowledge from being functional and useful. In this context, these Turkish schools did not have a planned and strategic knowledge management system.

The qualitative findings of this study are supported by the findings of: Özmen and Muratoğlu (2010) who stated that knowledge management strategies of schools are unsatisfactory in general; Abdullah and Talib (2012) who asserted that knowledge is not managed well and the sharing of knowledge between teachers is not sufficient; Alqudsi-Ghabra (2007) who claimed that knowledge is usually generated in a school under its own conditions, is indexed at a low level, and is disseminated in a random fashion. The statements of the participants in this study are also in line with the statements of: Wu, Lee, and Shu (2013) who noted that conferences, workshops, and formal and informal settings have a positive impact on the sharing of knowledge between teachers; Akhter and Khan (2011) who suggested that a school's knowledge acquisition culture can be improved through the consideration of a school's stakeholders with their environment; Muratoğlu (2005) who claimed that an efficient school requires an exchange of knowledge and sharing of exemplary practices by school administrators and teachers with other schools; Higgins, Ishimaru, Holcombe, and Fowler (2012) and Bolens (2007) who suggested that there must be a high level of psychological setting, experience, and strengthening leadership in schools; Abdullah and Talib (2012), Natek and Lesjak (2013), Noszkay and Balogh (2012), and Tahir et al., (2013) who noted that technology should be efficiently used in activities pertaining to the acquisition, storage, and dissemination of knowledge.

The study by Jurasaitė-Harbison and Rex (2010) reported that sharing of knowledge between teachers in Russia was inadequate because they could not create an opportunity for interaction. In that study, a participant named Anna said that it was important to interact with her colleagues but acts of sharing between teachers took place within individual relationships rather than at an organizational level. Also, not every teacher was willing to share knowledge and hence, she could only share knowledge with certain people. It can be concluded that the problems noted Anna were also expressed by the administrators and teachers serving in Turkish schools. Therefore, similar problems on knowledge management seem to exist in both Russian and Turkish schools.

In this study, the qualitative results partially explain the quantitative ones. When the quantitative results of the study are evaluated over the total score, respondents' attitudes are at a

positive level with respect to the totality of knowledge management and self-development sub-dimension. However, respondents' attitudes towards sub-dimensions of communication and commitment are not at a positive level and the respondents' presented opinions that knowledge management in schools is unsatisfactory, particularly in the case of the qualitative results. This suggests that knowledge management in Turkish schools is not at the desired level and that there are problems in the generation of new knowledge and in the acquisition and sharing of knowledge. According to Abdullah and Talib (2012), this is caused by a lack of free time when knowledge is needed, the cost of acquiring knowledge, and challenges in accessing knowledge. Hossain et al., (2013), Lee et al., (2010), Tapeparn and Bechina (2010) recommended the development of practical, cost-effective knowledge management systems that provide applicable knowledge to overcome the foregoing challenges. In this scope, we present a knowledge management model suitable for Turkish culture and the properties of Turkish schools in Figure 1.

In this model, Stage 1 represents the administrators' and teachers' attitudes regarding commitment, communication, and self-development. These attitudes affect the success of the knowledge management practices and can be improved through knowledge management studies. In Stage 2, as a result of the positive attitudes towards knowledge management seen in Stage 1, the curiosity of the administrators and teachers develops, and they have an increased desire to learn continuously, an increased motivation to generate knowledge, and teams generating knowledge are formed. In Stage 3, as a result of the emerging positive behaviors with respect to knowledge management seen in Stage 2, administrators' and teachers' competencies

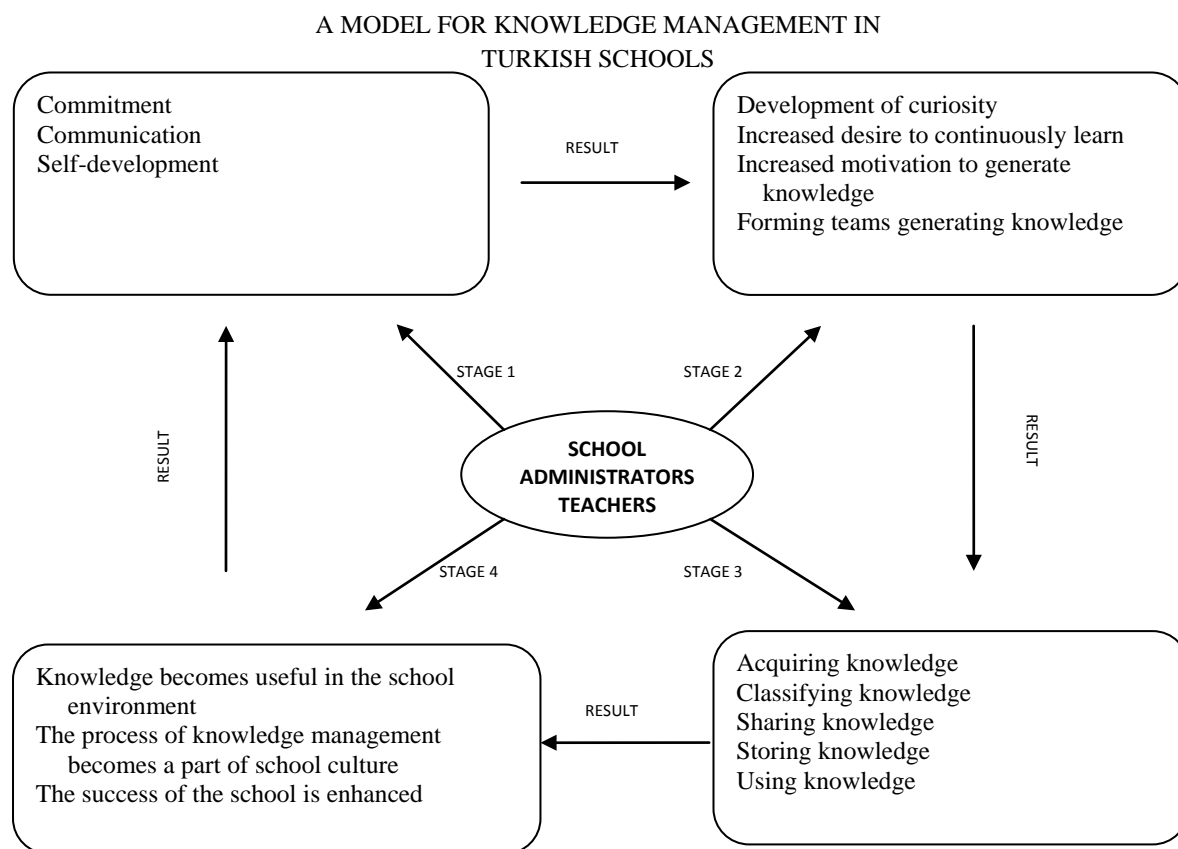


Figure 1: A model for knowledge management in Turkish schools

and capabilities in acquiring, classifying, sharing, storing, and using knowledge are enhanced. Finally, in Stage 4, as a result of the competencies that have emerged at stage 3, administrators and teachers ensure that knowledge becomes useful in the school environment, and that the knowledge management process becomes a part of the school culture and the success of the school is enhanced.

The gains of the fourth stage will have a positive effect on the commitment, communication, and self-development behaviors of the school administrators and teachers. These behaviors, which have been positively affected, will ensure the knowledge management processes continue and gain strength as they cycle through the stages continuously. This cycle becomes a part of the school culture over time and even if the key elements of the school such as personnel, budget, tools, and equipment undergo a change, the school can still keep pace with all these changes because of their knowledge management capabilities. As the school administrators and teachers cycle back to the first stage, they may be advised to review the changes that have occurred in the school, to analyze the present situation, and to make a healthy transition to the other stages in this regard.

Conclusion

In this study, the concept of knowledge management, which is used to a larger extent in business-type organizations, was assessed in educational institutions. Based on the findings of the study, a model has been proposed for improving the knowledge management process in Turkish schools. This study was distinguished from other research because a mixed methods model regarding knowledge management has not been completed. Also in this respect, this study contributes to the development of the concept of knowledge management. Moreover, the respondents in this study work in the Turkish education system. Considering that there is a limited number of studies on the Turkish education system in the literature, this study contributes to the literature, providing data from this Turkish education system. Future research should consider studies on knowledge management in different countries and to configure knowledge management models based on the conditions of the country surveyed.

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Note

The quantitative findings of this article were taken from the master's thesis of Yakup Yiğit in consultation with Assistant Professor Dr. Soner Doğan entitled "The Relationship Between School Administrators' and Teachers' Attitudes Towards Knowledge Management and Learning School Perceptions Based on Some Variables."

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