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## The results of needs analysis for a mobile application which will be developed with the purpose of supporting the intra-faculty communication and professional development of academics

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### Abstract

The purpose of this study is to determine the needs for a mobile application which will be developed so that the problems faced by academics in intra-faculty communication can be solved and their professional development can be supported. A questionnaire form consisting of two sections was used by researchers as a data collection tool of the study. Frequency analysis was conducted on the data obtained from the academics who were included in the study. At the end of the study, it was concluded that academics experienced problems as regards the communication means they used in the faculty, that phone costs increased, lines were mostly occupied, meetings took too much time and e-mails occasionally were not delivered. It was found out that academics requested that intra-faculty communication should be performed through a mobile device and should be given educative information as regards their professional development.

**Keywords:** Mobile application, mobile learning, intra-faculty communication, professional development, academic.

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## 1. Introduction

From an organisational perspective, communication is the most effective process in order to establish a communication network in the organisation, develop communication between persons and groups, perform the undertaken tasks and ensure coordination (Bicakci, 1998; Gizir, 2007; Goktas, Yildirim & Yildirim, 2008; Silku, 2002).

What is said for organisational communication is generally valid for education organisations as well. Communication process in universities is being effective with the participation of all elements which constitute the academic society including managers, faculty members, alumni and other officials. The multitude of elements that have to participate in the communication process makes it significantly difficult to create a common ground for communication.

Rowley (1996) states that academics, the cornerstones of academic departments which play the most important role in making universities reach their fundamental targets, are not in the position of passive message-takers in the organisational communication process; in fact, they are the most critical elements of this process.

It will not be wrong to establish a direct proportion between the success of managers and the nature of their communication with the subordinates (Bolat, 1996; Silku, 2002). A manager must share the responsibilities of the organisation by communicating with faculty staff of the education organisation, pay attention to use a clear and understandable language, have relevant skills and establish bi-directional communication in the education organisation and be able to make realist evaluations (Yoruk & Kocabas, 2001).

Gizir (2005) identified nine factors which negatively affected the communication between academics at the university, namely, insufficient communication, individualism, insufficient sharing of scientific knowledge, factionalism, lack of motivation, management problems, lack of common purpose, introversion of the department, criticism and department atmosphere.

There are several channels for the communication of academics working in education organisations. These channels are mostly known as Communication Networks. A communication network usually consists of formal and informal types of communication in structural terms (Singla, 2009).

Formal communication is the type of communication which is realised according to the rules adopted by an education institution, which is between statuses and between superiors and subordinates (Tyagi & Misra, 2010). Formal education moves in four directions, namely, vertical, horizontal, crosswise, and extrovert (Karcioglu & Kurt, 2009).

Vertical communication is the one established between managers and their subordinates. Vertical communication is established both top to bottom and bottom to top within organisational hierarchy (Tutar & Yilmaz, 2003).

The most widely used communication network in organisations goes from top to down (Yalcin & Selcuk, 2002). Vertical channels extending from top to down begin with the top manager and extend down by following the chain of command.

Bottom-up communication is, on the other hand, a communication channel which ensures that information on the behaviours, attitudes, expectations, reactions and concerns of academics are transferred to their superiors (Dalay, 2001). Operating this channel provides the creation of bi-directional communication (Yalcin & Selcuk, 2002).

Horizontal communication is established by academics at the similar or same level during their routine activities (Misirli, 2003).

Crosswise communication is the relation between the employees in one department and subordinates or superiors in another department or, a manager directly contacting with employees in a department other than his own (Tutar & Yilmaz, 2003).

Extrovert communication is making contact with the public, students, alumni, parents, competitors, government and other education organisations (Efil, 2002).

Informal communication channels emerge as a natural result of the social relations between the members of education organisation (Yalcin & Selcuk, 2002). It is a non-formal type of communication which is not bound by pre-set conditions and channels.

In his study, Gizir (1999) mentioned several factors which affected communication in an academic environment negatively and positively. Among these factors, weak discipline culture, insufficient sharing of scientific knowledge, lack of common purpose, competition, criticism, factionalism and individualism affected communication process negatively. Inter-disciplinary studies, joint lecturing, co-counselling, seminars, symposiums, minor undergraduate programmes, double major undergraduate programmes, common studies, common purposes, official channels, informal atmosphere, physical environment, traditions and social activities are identified as factors which affect communication positively.

There are some communication tools used within the communication channels realised in education organisations. For example, there are 'written communication tools' such as annual reports, brochures, bulletins and manuals, posters and banners, announcement boards, letters and suggestion boxes. There are also verbal communication tools such as meetings and interviews, conferences, seminars and telephone calls. In addition to the foregoing, there are audio-visual communication tools through which the message reaches both to the eye and to the ear such as films, videos, records, projectors, radios and televisions (Tutar & Yilmaz, 2003). Although they do not allow for bi-directional communication nowadays, they undertake essential functions in the creation of public opinion (Bicakci, 1998).

These listed communication channels and tools can be time-consuming, costly and non-applicable in times. If there are obstacles in creating the communication needed for cooperation to exist, they have to be identified and eliminated, as between managers, academics and other employees, there can be communication obstacles that are caused by their behaviours to each other, the language they use and their statuses (Bolat, 1996).

With technological developments, online communication tools came to the agenda in intra-organisation communication such as e-mail, intranet, online newsletter, Internet blogs, social media, websites, messaging programs (Facebook Messenger), instant messaging applications (WhatsApp, Viber) and similar technologies based on computers and Internet offer new media for communication and create the new form of intra-organisational communication (Calik, 2012; Pelin & Ozel, 2012). So, one can consult academics more frequently and attend chat environments for brainstorming and study teams.

One of the most important features which distinguish education organisation from other organisations is that academics have a certain level of professional knowledge and skills. Technology plays an essential role in activating both managerial and teaching applications in the professional development process. From the point of managerial practices, it is clear that technology will introduce benefits in terms of enrichment and improvement of sources of information, provision and development of new administrative services, increasing administrative efficiency and effectiveness (Picciano, 1998).

Particularly, in the recent years, it is witnessed that mobile technologies which provide access to information ubiquitously and allow for learning in action are coming to the forefront as technologies which can be used with the purpose of professional development of academics (Kukulska-Hulme & Traxler, 2007; Soykan & Uzunboylu, 2015).

In their research (Yigit, Zayim & Yildirim, 2002), determined the opinions and attitudes of managers, lecturers and research assistants who constitute the academic staff on the usage of technology for administrative purposes in the entire education faculty. Administrative personnel stated that they had

difficulty in access to information while they are doing their tasks and responsibilities (student follow-up, academic follow-up, etc.) for which reason they needed some databases. It was emphasised that when these needs were met, administrative functions could be performed more effectively and efficiently. In addition, it was claimed that if electronic media were used more widely in administrative affairs (official communication, announcements, etc.), it would play a significant role in making communication faster and more effective.

Although the importance of the communication process is noticed at universities, it is seen that there are limited studies on the communication processes at universities. Therefore, making sure that academics use technology effectively and efficiently and creating professional development effectiveness and establishing a communication network in organisational communication require mobile technologies (Rice & Miller, 2001). During a mobile application design, the first step is the analysis of stakeholders of the project. The most critical points in the mobile application are answering such questions as by whom, for which purpose and how the mobile application will be used.

In this context, a needs analysis was performed in order to reveal what can be needed for the mobile application, which will be developed for the purpose of solving intra-faculty communication problems experienced by academics and supporting their professional developments. Within this scope, answers were sought to the following research problems:

1. What is the distribution of academics according to their indicative features?
2. What are the technological devices used by academics at present?
3. What are the problems experienced by academics in intra-faculty communication?
4. What are the features that academics would like to have in the mobile application?
5. What are the professional development contents that academics would like to have in the mobile application?

## **2. Methods**

### **2.1. Model of the research**

In this research, 'definitive/descriptive research' method was used in order to determine the needs for mobile application which would be developed with the purpose of solving the problems experienced by academics in intra-faculty communication and supporting their professional development and the data were retrieved with a quantitative method.

Definitive studies can be quantitative or qualitative. They are situation-determining studies, which are mostly used in order to determine the features and frequencies of events (Borg & Gall, 1989). However, definitions are not an end; they are means that take the researcher to the conclusion (Verma & MalloOck, 1999).

### **2.2. Study group**

The universe of the study consists of the academics working at Atatürk Faculty of Education of Near East University in 2016–2017 academic year. The entire research universe could not be reached; therefore, from the study universe consisting of 223 persons, 80 academics were included in the study with 95% reliability level and 8.5% sampling error based on random sampling method.

### **2.3. Data collection tools**

In the research, a questionnaire consisting of two sections was used by the researchers as data collection tool.

In the first section of the questionnaire, questions aiming at determining the introductory features of academics, technological devices they use, their tools of communication and problems they

experience in communication were included. The second section consists of the questions prepared with the purpose of identifying the requests of academics as regards the content of the mobile application. The questionnaire was prepared according to the book titled 'How to Develop a Questionnaire? All steps from design to testing (2014)', which was prepared by the Turkish Statistical Institute based on the written opinions of four field experts.

#### 2.4. Data analysis

In the research, statistical package for social sciences 21.0 statistical data analysis package program was used in the statistical analysis of the data collected through the questionnaire.

Frequency analysis was made with the purpose of determining the definitive features of academics included in the study as well as the electronic devices and communication tools they used and problems they experienced in communication, and the results were shown with frequency distribution tables.

Frequency analysis was performed in order to identify the educational needs of academics in effectively communicating the managerial decisions taken within the faculty, the organised events, announcements, activities, etc. and in performing the tasks required by the information communicated which would be included in the content of the mobile application.

### 3. Findings

Table 1 gives the distribution of academics covered by the study according to their definitive features.

**Table 1. Definitive features of academics**

<b>Definitive features</b>	<b>Number (n)</b>	<b>Percentage (%)</b>
Gender		
Female	45	56.25
Male	35	43.75
Age group		
30 and below	32	40.00
31-40 ages	29	36.25
41 and above	19	23.75
Academic status		
Research assistant	36	45.00
Lecturer	44	55.00
Managerial status		
Non-manager	62	77.50
Manager	18	22.50
Total	80	100.00

When Table 1 is examined, it can be seen that 56.25% of the studied academics are female and 43.75% are male, 40% are below 30 years of age, 36.25% are between 31 and 40 years of age and 23.75% are above 41 years of age; 45.0 are research assistants and 55% are lecturers, and 22.50% are in managerial positions.

Table 2 gives the distribution of electronic devices and smartphone platforms used by the academics included in the study.

**Table 2. Electronic devices and smartphone platforms used by the academics**

	Number (n)	Percentage (%)
Electronic devices used		
Smartphones	75	93.75
Tablets	39	48.75
Desktop computers	63	78.75
Laptop computers	72	90.00
Smart phone platform (n = 75)		
IOS	34	42.50
Android	41	51.25

According to Table 2, it was found out that 93.75% of the academics who participated in the study used smartphones, 48.75% used tablets, 78.75% used desktop computers and 90% used laptop computers. 42.5% of the academics who used smartphones used ISO and 51.25% used smartphones with Android processor system.

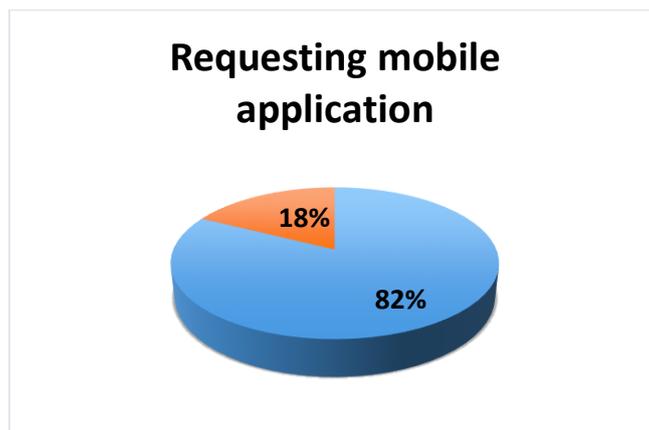
Table 3 gives the distribution of methods used by academics included in the study in intra-faculty communication and the problems they experienced.

**Table 3. Methods used by academics in intra-faculty communication and the problems they experienced**

	Number (n)	Percentage (%)
Method of communicating with the faculty		
Personal phone	70	87.50
Fixed phone of the faculty	37	46.25
E-mail	71	88.75
Face to face	58	72.50
Through secretary	35	43.75
Through meetings	39	48.75
Problems encountered in communication with the faculty		
Higher telephone costs	44	55.00
The line is usually occupied	31	38.75
Sometimes e-mails are not delivered	29	36.25
Inability to see the lecturer face-to-face	32	40.00
Not being able to retrieve sufficient information from the Secretariat	24	30.00
Meetings consuming time	18	22.50
I do not have any problems	14	17.50

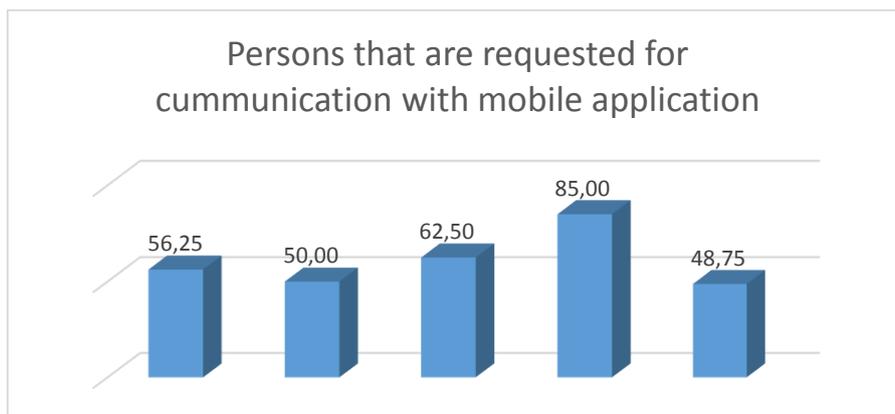
When Table 3 is examined, it can be seen that 87.50% of the academics who participated in the study stated that they used personal phones for intra-faculty communication, whereas 46.25% used fixed phone of the faculty, 88.75% used e-mail, 72.50% used face-to-face meetings, 43.75% used secretariat and 48.75% used meetings. An examination of the problems encountered by academics as regards the communication tools used in intra-faculty communication, it was found out that 55% said that telephone costs increased, 38.75% stated that the line was usually occupied, 36.25% stated that sometimes e-mails could not be delivered, 40% said that they could not see the lecturer in person, 30% said that they could not retrieve sufficient information from the secretariat and 22.5% stated that meetings were time-consuming. 17.5% of the academics stated that they had no problems in intra-faculty communication.

Figure 1 gives the distribution of academics taking part in the study as regards their requests for intra-faculty communication to be held with a mobile application through mobile devices, which shows that 82% of the academics requested that intra-faculty communication should be realised through a mobile application.



**Figure 1. Requests of academics for realisation of intra-faculty communication with a mobile application through a mobile device**

When Figure 2 is examined, it can be seen that through mobile application, 56.25% of academics requested to communicate with the dean/vice dean, 50% with the graduate school director, 62.5% with head and deputy head of departments, 85% with lecturers and 48.75% with students.



**Figure 2. Distribution of people that academics want to communicate within mobile application**

When Figure 2 is examined, it can be seen that through a mobile application, 56.25% of academics requested to communicate with the dean/vice dean, 50% with the graduate school director, 62.5% with head and deputy head of departments, 85% with lecturers and 48.75% with students.

**Table 4. Distribution of features that academics covered by the study requested the mobile applications to have and the education content**

	Yes		No		None	
	N	%	n	%	n	%
Decisions taken within the faculty should be sent to my mobile device	74	92.50	4	5.00	2	2.50
The tasks that I have to do should be sent to my mobile device.	76	95.00	2	2.50	2	2.50
Intra-faculty news should be sent to my mobile device.	69	86.25	8	10.00	3	3.75
Intra-faculty announcements should be sent to my mobile device.	76	95.00	4	5.00	0	0.00
Intra-faculty activities should be sent to my mobile device.	73	91.25	5	6.25	2	2.50
Names, phone numbers, room numbers of intra-faculty on-duty lecturers	57	71.25	12	15.00	11	13.75
Course programme of all departments should be included	47	58.75	21	26.25	12	15.00
Projector usage programme should be included	53	66.25	14	17.50	13	16.25
Applied short education videos as regards the usage of the entire Einstein system	61	76.25	7	8.75	12	15.00
Guiding files as regards the tasks that I have to perform	66	82.50	8	10.00	6	7.50
Applied short education videos as regards receiving academic plagiarism detector account and user information	61	76.25	7	8.75	11	13.75
Educative contents as regards the library	61	76.25	8	10.00	11	13.75
Educative content as regards article encouragement and congress/conference application stages	72	90.00	3	3.75	5	6.25

When Table 4 is examined, it was detected that 92.5% of academics participating in the study requested that intra-faculty decisions should be sent to their mobile devices; 86.25% requested that intra-faculty news, 95% requested that the tasks that they should perform, 95% requested that intra-faculty announcements, 91.25% requested that intra-faculty activities and 71.25 requested that on-duty lecturer information should be sent to their mobile device. 58.75% of academics request that course programs of all departments, 66.25 request that projector usage programme, 76.25% request that applied education videos on the usage of Einstein system, 82.5% request that guides as regards their tasks, 76.25 request that education videos as regards academic plagiarism detector, 76.25 request that educative content as regards the library and 90% request that educative content as regards article encouragement and congress/conference application stages should be provided by the mobile application.

#### 4. Conclusion and discussion

In this study, which was conducted with the purpose of determining the needs for the mobile application which would be developed in order to solve the problems encountered in intra-faculty communication and support professional development, it has been determined that 56.25% of academics were females, 43.75% were males, 40% were at the age of 30 and below, 36.25% were between the ages of 31 and 40, 23.75% were at the age of 41 and above, 45% were research assistants, 55% were lecturers and 22.5% had managerial positions.

It was found out that 93.75% of the academics used smartphones, 48.75% used tablets, 78.75% used desktop computers and 90% used laptop computers. 42.5% of the academics who used smartphones employed IOS and 51.25% used Android processing system phones.

It was determined that 87.5% of the academics performed intra-faculty communication with the personal phone, 46.25% with a fixed phone of the faculty, 88.75% with e-mail, 72.5% with meeting in

person, 43.75% through Secretariat and 48.75% through meetings, all of which employed mostly traditional written and verbal communication tools.

It is concluded that academics mostly used personal smartphones although investment is made in technological devices so that the quality of education at universities could be improved, faculty staff is not using them sufficiently in their academic works and teaching activities (Goktas et al., 2008; Menzi, Onal & Caliskan, 2012).

When the problems encountered by academics in intra-faculty communication are examined, it was identified that 55% said that telephone costs increased, 38.75% said that the line was usually occupied, 36.25% stated that sometimes e-mails were not delivered, 40% said that they could not see the lecturer in person, 30% claimed that they could not obtain sufficient information from the secretariat and 22.5% said that meetings consumed too much time. 17.5% of the academics stated that they did not have any problems in intra-faculty communication.

Yigit et al. (2002) claim that both teaching and administrative technology usage should mean the technologies that the faculty benefited with the purpose of performing its tasks and responsibilities and conducting its administrative works. When the most frequently used technological resources in administrative affairs are examined, it was seen that computer and peripheral hardware (printer, scanner, etc.), Xerox and communication tools (telephone, fax, etc.) are most widely used in terms of hardware. In terms of software, it is stated that office (word processor, excel table, etc.) and database applications are most widely used. In addition, it was stated that popularising electronic media in administrative affairs (official communications, announcements, etc.) would play a considerable role in making communication faster and more effective.

When the requesting status for performing intra-faculty communication with a mobile application through a mobile device is examined, it was found out that 82% of the academics requested that intra-faculty communication should be performed through mobile applications.

It was determined that 56.25% of the academics wanted to communicate through the mobile application with the dean/vice dean, 50% with the graduate school director, 62.5% with head and deputy head of the department, 85% with lecturers and 48.75% with students. Accordingly, it was concluded that academics requested top-down and bottom-up communication, which is a type of vertical communication as well as horizontal communication.

Intra-organisational communication is a very essential subject which requires planning and management under the leadership of top management which recognises its importance. Employees must be important not just because they are spokespersons; by planning communication as a process that functions bi-directionally, while communicating the existing situation, target etc. of the organisation, opinions and suggestions from internal target groups can be sought and their participation can be ensured as a target.

It was found out that 92.5% of academics requested that decision taken within the faculty should be sent to their mobile devices, while 95% requested that the tasks they had to perform, 86.25% requested that faculty news, 95% requested that faculty news, 91.25% requested that faculty activities and 71.25% requested that information of the lecturer on-duty should be sent to their mobile devices.

Today, beyond the financial expectations of employees from their organisation, respect, participation in decisions, job satisfaction, effective communication and activities related to professional development are much more important. In the light of these data, organisational communication processes should be designed and academics should be contacted through informing, constant and formal ways.

58.75% of academics request that course programs of all departments, 66.25 request that projector usage programme, 76.25% request that applied education videos on the usage of Einstein system, 82.5% request that guides as regards their tasks, 76.25 request that education videos as regards academic plagiarism detector, 76.25 request that educative content as regards the library, 90%

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request that educative content as regards article encouragement and congress/conference application stages should be provided by the mobile application.

Likewise, Ozdamar-Keskin and Kuzu (2011) developed a mobile application for professional development requirements, which is compatible with iPod touch and iPhone devices which consisted of courses, online resources, consultancy, assistance and communication tools so as to meet the professional development needs of academics in the context of scientific studies.

With this study, the needs for a mobile application, which would be developed with the purpose of solving problems encountered within the faculty and supporting professional development, are determined. In the next stage, it is needed that the technological infrastructure and design stages of the mobile application should be explored. It is hoped that the study will set an example to the researchers who will develop mobile applications.

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