

Determinants of mobile phone usage behaviors of young users: Case of Turkey

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Abstract

Mobile phone usage has increased rapidly widespread in Turkey as it is in most parts of the world, and especially among young users. The main objectives of this research are to explore the mobile phone usage behaviors of Turkish youth and to examine the factors affecting these behaviors. For this purpose an empirical study is conducted with young people by means of a questionnaire which has been developed based on previous researches and theories. It is administered to a total of 462 internet users aged 18 – 30 and a total of 431 usable data are collected. Frequency analysis is used for descriptive statistics, reliability analysis is applied to test internal consistency, and Chi-square analysis is used to estimate unique effects of different factors on mobile phone usage behaviors of young users. Descriptive statistics show the distribution of the respondents according to their demographic characteristics and mobile phone ownership aspects. The reliability of the questionnaire is high since the Cronbach's alpha value comes out to be greater than 0.7 for the related multi item questions. Results of the Chi-square analysis indicate that the demographic characteristics and mobile phone ownership aspects of young users affect their mobile phone usage behaviors, but their socio-psychological mobile phone usage attitudes have no effect.

Keywords: mobile phone usage, young, attitude, behavior, Turkey

1. Introduction

Communication devices are the output of technological revolution and mobile phone is one of those devices which is globally persistent and gives communication freedom to individuals in their daily lives. As it happens for every device introduced by technological development, young people are the first dynamic consumers of mobile phones. The market segment consisting of young people has been called the sweet spot of the communications industry ^[1].

An important issue that needs to be tackled is to explore the factors that affect the mobile phone usage behavior of young people. According to previous researches, besides demographic characteristics, mobile phone ownership aspects and socio-psychological mobile phone usage attitudes also have considerable effects on these behaviors.

Turkey has a very young population hence is a growing mobile country. Turkey has a population of about 80 million with a growth rate of 1.2 % per year where the percentage of young population (18-30 years old) is around 19.

Considering the above issues, the aim of this study is set to determine the factors affecting the mobile phone usage behaviors of young Turkish people.

For this purpose, first a literature survey was made and then based on this survey a theoretical framework was designed. Afterwards a questionnaire was developed to test this framework. Then, a panel of experts and pilot studies were consulted to ensure that the understandability and

measurement of the questionnaire were appropriate. Convenience sampling (non-probability sampling design) was used to gather data quickly and efficiently. The respondents of the survey were 18-30 years young individuals in Turkey who were using internet. 431 respondents successfully completed all questions of the survey. These collected 431 responses by the survey were statistically analyzed using SPSS v.18 and hypotheses of the framework were tested.

2. Literature Survey

As stated before young people are very dynamic consumers of mobile phone related communication products and services ^[1]. Because of this, mobile phone usage is increasing among the young users all over the world rapidly. Last years' reports show that attitudes and behaviors of users, especially young ones, are changing with the popularity of the mobile phones. Young people may find many different reasons for having and using a mobile phone. Demographic characteristics of the young individuals is one the main factors that directly affect their behaviors whereas mobile phone ownership aspects is another issue that has influence on these behaviors. On the other hand, especially in last decade, many researches have made studies about impacts of socio-psychological mobile phone usage attitudes and there are also lots of models and analyzes about young individuals' mobile phone usage behaviors in this context. Findings of the literature survey for the above factors are summarized in Table 1.

Table 1: Literature survey on factors affecting mobile phone usage behaviors of young users

| Factors | References |
|---|-----------------------------|
| Demographic Characteristics | |
| Gender | [2, 3, 4, 5, 6, 7, 8] |
| Education Level of User | [9] |
| Employment Status | [6] |
| Education Level of Parents | [3] |
| Mobile Phone Ownership Aspects | |
| Ownership Manner | [4] |
| Ownership Duration | [4] |
| Socio-Psychological Mobile Phone Usage Purposes | |
| Social Interaction | [6, 10, 11, 12, 13, 14, 15] |
| Parental Contacts | [6, 11] |
| Financial Incentive | [3] |
| Information Access | [11, 16] |
| Time Management/Coordination | [6, 11] |
| Safety and Security | [6, 10, 11, 17] |
| Personal Privacy | [10, 11] |
| Personal Image/Status | [9, 11, 17, 18, 8, 16] |
| Mobile Phone Dependency | [11, 17, 19, 20] |

Young individuals are using mobile phones due to various reasons like demographic, ownership or socio-psychological related factors. All these reasons create the behavior of user, but the other important point is how to measure this behavior. There are several scales to measure the mobile phone users' behavior in numeric form that is called usage intensity. Geser^[3] explains the usage intensity as a multidimensional concept that has to be operationalized by a comprehensive battery of empirical indicators: by the average monthly telephone bill as well as by the number of outgoing and incoming audio calls and text messages, the average length of calls as well as the time span of connectivity and the number of contacted partners. Chakraborty^[21] also suggests a scale about the behavioral characteristics of the university students. This scale composes of given variables: usage data such as length of mobile phone usage, typical time of mobile phone use, average number of calls received/sent, typical location of mobile phone use and use and number of text messages. In conclusion, all these variables in the given scales are similar and easily measurable by using survey methodologies. Therefore, behaviors of the young mobile phone users can be analyzed by considering these scales.

3. Theoretical framework and research methodology

The aim of this study was to determine how young Turkish individuals' mobile phone usage behaviors change according to their demographic characteristics, mobile phone ownership aspects and socio-psychological mobile phone usage attitudes. For this aim, based on literature survey results, the theoretical framework given in Figure 1 was generated. Based on the given generated theoretical framework, the below 3 main hypotheses were determined together with their 32 sub-hypotheses.

- **Hypothesis 1:** Mobile phone usage behaviors of young users change according to their demographic characteristics.
- **Hypothesis 2:** Mobile phone usage behaviors of young

- users change according to their mobile phone ownership aspects.
- **Hypothesis 3:** Mobile phone usage behaviors of young users change according to their socio-psychological mobile phone usage attitudes cluster membership.

Then, as a quantitative survey methodology, a questionnaire was developed to test the theoretical framework. The design of the questionnaire was as follows:

- **Section 1:** 6 questions about demographic characteristics of the respondent.
- **Section 2:** 2 questions about mobile phone ownership aspects of the respondent.
- **Section 3:** 14 questions about socio-psychological mobile phone usage attitudes of the respondent.
- **Section 4:** 4 questions to determine the mobile phone usage behaviors of the respondent.

A panel of experts, two faculty members at the Management Information Systems Department in Bogazici University, was consulted to ensure that the understandability and measurement of the questionnaire was appropriate. Then, a pilot study was established in a global system for mobile communications company in Turkey with 10 young employees. Using both feedbacks from experts and young individuals, necessary wording and scale corrections were done on the questionnaire. After getting the questionnaire in its final form, it was published online via a survey preparation tool provider web site. The questionnaire was live online for one month.

Convenience sampling (non-probability sampling design) was used to gather data quickly and efficiently. The respondents of the survey were 18-30 years young individuals in Turkey who were using the internet. All questions of the questionnaire were mandatory. So, respondents who completed the survey answered all of the questions. At the end of the data collection period, 431 out of 462 respondents completed all of the questions of the survey. These collected 431 responses by the survey were statistically analyzed using SPSS v. 18.

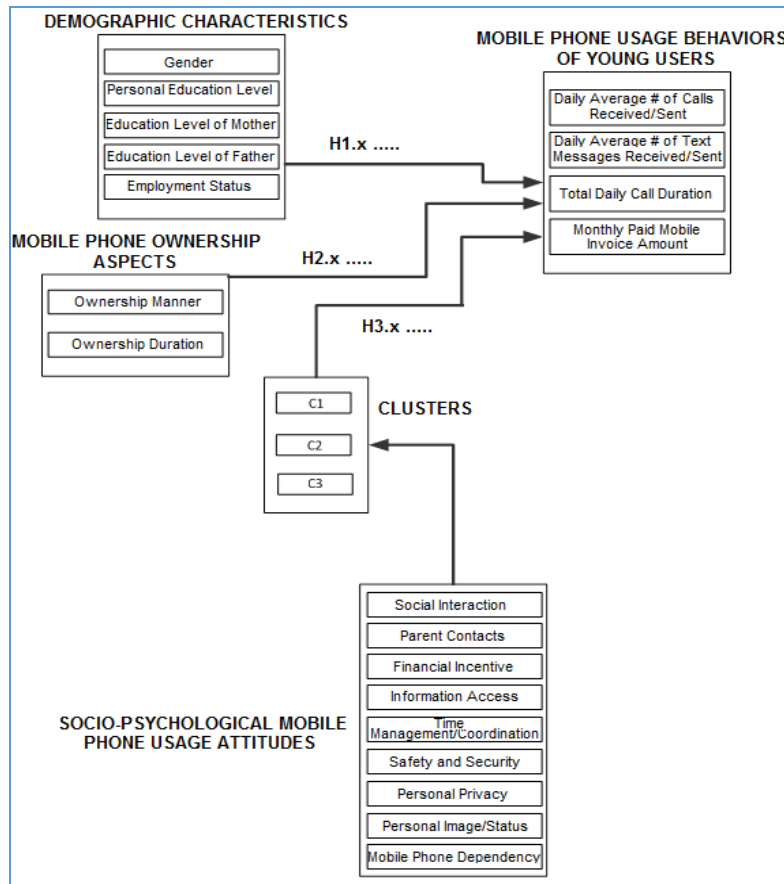


Fig 1: Theoretical framework

4. Analyses and Findings

The first analyses applied to the data collected were frequency analyses of background data (demographic

characteristics and mobile phone ownership aspects) of the respondents. The results of these analyses are given in Table 2.

Table 2: Frequency analyses of background data of respondents

| Characteristic | | % | Characteristic | | % |
|---------------------------|-------------------|------|--|-------------------|------|
| Gender (n=431) | Female | 45.7 | Education Level of Father | Pre-High School | 22.5 |
| | Male | 54.3 | | High School | 30.2 |
| Age (year) | 18 – 20 | 16.5 | | Bachelor's Degree | 39.7 |
| | 21 – 23 | 38.3 | | Master's Degree | 4.1 |
| | 24 – 26 | 28.1 | | PhD Degree | 3.5 |
| | 27 – 30 | 17.1 | Employment Status | Not Working | 50.8 |
| Personal Education Level | Pre-High School | 0.7 | | Part-Time | 10.7 |
| | High School | 2.6 | | Full-Time | 38.5 |
| | Bachelor's Degree | 68.4 | Mobile Phone Ownership Manner | Self-Bought - Yes | 49.9 |
| | Master's Degree | 23.9 | | Self-Bought - No | 50.1 |
| | PhD Degree | 4.4 | Mobile Phone Ownership Duration (year) | 1 – 3 | 0.9 |
| Education Level of Mother | Pre-High School | 39.4 | | 3 – 6 | 10.0 |
| | High School | 28.5 | | 6 – 9 | 36.7 |
| | Bachelor's Degree | 27.8 | | Over 9 | 52.4 |
| | Master's Degree | 2.4 | | | |
| | Master's Degree | 2.4 | | | |
| | PhD Degree | 1.9 | | | |

The next analysis was the internal consistency reliability analysis through Cronbach's alpha test for the 5-point scaled multi item 14 questions in Section 3 of the questionnaire which were related to socio-psychological mobile phone usage attitudes of the respondents. Since the Cronbach's alpha value (0.83) was greater than 0.7, the internal consistency was accepted as reliable. After this analysis, k-means cluster analysis for 3 clusters was applied to these 14

items and final cluster centers were achieved with 17 iterations. User profiles for 3 clusters can be summarized as follows:

- **Cluster 1:** Highly dependent mobile phone users (43%)
- **Cluster 2:** Partially dependent mobile phone users (41%)
- **Cluster 3:** Relax mobile phone users except emergency and parental contacts cases (16%)

The last analyses were all for testing the hypotheses about the

factors affecting mobile phone usage behavior of young users by Chi-square analysis. The results (Table 3) show that out of

32 hypotheses, 9 hypotheses were accepted with 0.05 level of significance and 23 hypotheses were rejected.

Table 3: Results of Chi-square analysis

| Factors Affecting Mobile Phone Usage Behavior of Young Users | Mobile Phone Usage Behavior of Young Users | | | |
|--|--|--|---|---|
| | Daily Average # of Calls Received/Sent | Daily Average # of Text Messages Received/Sent | Total Daily Call Duration | Monthly Paid Mobile Invoice Amount |
| 1. Demographic Characteristics | | | | |
| Gender | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ |
| Personal Education Level | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ |
| Employment Status | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ |
| Education Level of Mother | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ |
| Education Level of Father | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ |
| 2. Mobile Phone Ownership Aspects | | | | |
| Ownership Manner | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ |
| Ownership Duration | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Accepted $\alpha \leq 0.05$ |
| 3. Socio-Psychological Mobile Phone Usage Attitudes Cluster Membership | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ | Hypothesis Rejected $\alpha > 0.05$ |

For the accepted hypotheses, the followings can be indicated:

- There is a relationship between the personal education level of and daily average number of text messages received and sent by the young individuals. In this study, it was observed that the relation is in negative direction; daily average number of text messages is decreasing while the level of personal education is increasing.
- There is a relationship between the employment status of and daily average number of text messages received and sent by the young individuals. In this study, it was observed that the relation is in negative direction; daily average number of text messages is decreasing while the level of status is increasing.
- There is a relationship between the employment status and monthly paid mobile invoice amount of the young individuals. In this study, it was observed that the relation is in positive direction; monthly paid mobile invoice amount is increasing while the level of employment status is increasing.
- There is a relationship between the education level of the mother and total daily call duration of the young individuals. In this study, it was observed that the relation is in negative direction; total daily call duration is decreasing while the education level of the mother is increasing.
- There is a relationship between the education level of the mother and monthly paid mobile invoice amount of the young individuals. In this study, it was observed that the relation is in positive direction; monthly paid mobile invoice amount is increasing while education level of the mother is increasing.
- There is a relationship between the education level of the father and total daily call duration of the young individuals. In this study, it was observed that the relation is in negative direction; total daily call duration is decreasing while the education level of the father is increasing.
- There is a relationship between the education level of the

father and monthly paid mobile invoice amount of the young individuals. In this study, it was observed that the relation is in positive direction; monthly paid mobile invoice amount is increasing while education level of the father is increasing.

- There is a relationship between the mobile phone ownership manner and monthly paid mobile invoice amount of the young individuals. In this study, it was observed that the young user who bought his/her mobile phone by himself/herself paid much more mobile invoice amount.
- There is a relationship between the mobile phone ownership duration and monthly paid mobile invoice amount of the young individuals. In this study, it was observed that the relation is in positive direction; monthly paid mobile invoice amount is increasing the mobile phone ownership duration is increasing.

5. Conclusion and Implications

This study has shown that there are several factors affecting the mobile phone usage behaviors of young individuals. By conducting a questionnaire survey within Turkey, the theoretical framework generated in this study has been partly confirmed. In align with previous studies, when demographic characteristics of users are considered, users' and their parents' educational levels, and also the users' employment status except their gender have influenced their mobile phone usage behavior. On the other hand, ownership manner and ownership duration, as mobile phone ownership aspects, have also been the factors that have affected the young users' behaviors again consistent with previous studies. It is surprising that, socio-psychological mobile phone usage attitudes of the users have no effect on their mobile phone usage behaviors. This may be due to the cultural characteristics of young individuals living in Turkey. But it is interesting to see that young users in Turkey can be clustered depending on their socio-psychological mobile phone usage attitudes. These clusters can be named as highly mobile phone

dependent users, partially dependent users, and relax users except emergency and parental contacts cases.

Results of this study can be used for decision-making and user profiling researches of the mobile operators, consultancy firms, marketing researchers and also social science researchers. Designers and marketers of mobile phones should pay attention to the factors that influence behavioral aspects of mobile phone usage of young users especially. Findings of the study have implications especially for regional mobile phone marketing strategies like market segmentation and target marketing purposes.

This research like any other researches has its limitations and hence gives some suggestions for further studies. First of all, convenience sampling was used to collect information from respondents. This method was convenient for the respondents who were using internet and easily available to fill the survey. If the representativeness of the sample is critical for the studies in the future, a probability sampling design should be used to make the data collected more reliable. By this way, the findings can be confidently generalized to the population as a whole. Furthermore, this paper examined young Turkish individuals' attitudes and behaviors towards mobile phone usage. The cities of residence of the respondents were not known and majority of the sample was from Istanbul. As a result of this, generalizability of the scope was limited. A more widespread study can be applied to other regions of Turkey. On the other hand, it is known that mobile communication technology is advancing with rapid pace and this may change the behaviors of the young mobile phone users in the coming years. Due to this fact, there may be necessities to re-state the research hypotheses for future studies.

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