YOUNG PEOPLE'S ATTITUDES TOWARD MOBILE PHONES IN THE REPUBLIC OF MACEDONIA

Anita Ciunova - Shuleska[a]

By Marija Grishin[b]

Nikolina Palamidovska[c]

This study explores the mobile phones' attitudes and usage habits of young people in the Republic of Macedonia. The data from the survey were subjected to exploratory factor analysis, cluster analysis and ANOVA. The factor analysis identified five different factors interpreted as: fashion/status, dependency, added value, safety/security and negatives.

Cluster analysis produced two segments: involved mobile phones users and indifferent mobile phone users. The ANOVA test revealed differences in the mobile phone attitudes regarding years of mobile phone use, number of calls per day and the average duration of a call. The results provide useful implications for development of effective marketing strategies.

Keywords:

Mobile phones

Attitudinal factors

Customer segments

JEL:
M39

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[a] Associate Professor, PhD, Ss. Cyril and Methodius University, Faculty of Economics-Skopje, Blvd. Goce Delcev, 9V, Republic of Macedonia (e-mail: anita@eccf.ukim.edu.mk)

[b] Teaching Assistant, MSc, Ss. Cyril and Methodius University, Faculty of Economics-Skopje, Blvd. Goce Delcev, 9V, Republic of Macedonia (e-mail: marija@eccf.ukim.edu.mk)

[c] Teaching Assistant, MSc, Ss. Cyril and Methodius University, Faculty of Economics-Skopje, Blvd. Goce Delcev, 9V, Republic of Macedonia (e-mail: nikolina@eccf.ukim.edu.mk)

I. INTRODUCTION

According to the International Telecommunications Union (ITU), there are now over 5 billion mobile phone subscriptions worldwide; access to mobile networks is now available to over 90% of the world population and to 80% of the population living in rural areas. In the Republic of Macedonia, the penetration rate of the mobile phone subscribers is 104.90 % of total population (Ipsos strategic puls).[1]

The use of mobile communication devices is increasing rapidly and devices based on mobile technology are commonplace in everyday life (Balasubramanian, Peterson and Jarvenpaa, 2002). Motivated by the need to understand the implications of the rapid diffusion of the mobile phone, numerous studies have been conducted concerning this topic worldwide. Researchers express a growing interest in the examination of mobile phone attitudes and social implications of the use of mobile phone particularly in well-developed countries and among the younger generation (Katz and Aakhus, 2002; Ling 2004; Baron 2010). Also, researchers express a growing interest in understanding the reasons for mobile phones use (Sarker and Wells 2003) and in determination of basic motivational profiles for mobile device usage (Leung and Wei, 2000; Aoki and Downes, 2003; Tian, Shi and Yang, 2009; Wei and Lo, 2006; Jin and Villegas, 2008; Ozcan and Kocak, 2003). Although studies of the mobile phone attitudes and mobile phone use are widespread in the literature, still, little attention has been given to explicitly researching the influence of specific behavioural characteristics of mobile phone users on mobile phone attitudes. As this topic is still not well understood, future research is needed to address this shortcoming in the literature. This study contributes to the literature by providing further empirical evidence in relation to the impact of years of mobile phone use, number of calls per day and average duration of a call on mobile phone attitudes among the young people in the Republic of Macedonia.

In addition, the present study is a pioneer attempt to explore the dimensions of people's attitudes toward mobile phones and to identify the segments of mobile phone users in the Republic of Macedonia. This study could be beneficial as a basis for developing and adapting marketing strategies of the companies entering emerging markets, such as the Macedonian market. This study can also provide a basis for future cross-cultural research of this topic among the countries in the region.

II. LITERATURE REVIEW

While the mobile phone technology is expanding rapidly and thus introducing new ways of interpersonal and mass communication, the empirical research on mobile phones is still scarce. Regarding the studies of the attitudes toward mobile phones, different researchers identify different motives and attitudes for mobile phone use, most of them being primarily based on the uses and gratification approach. This approach assumes that the audience actively selects and uses media and that the employment of media by individuals depends on their social and psychological needs as well as gratification-seeking motives (Katz et al., 1973).

Telephone-related research differentiated telephone uses into two broad motives or gratifications - intrinsic or socially motivated and instrumental or task-oriented (Keller, 1977; Noble, 1987). More recent studies performed within a variety of countries have confirmed the general categorization of intrinsic and instrumental motives in the use of mobile phones. Naturally, with the development of the mobile phone devices and the accompanying services, the studies reveal new attitudes toward the mobile phone, such as security concerns and information-seeking motives. Given the scarce research on this topic in the developing countries,

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[1] *It should be noted that these figures include people who are subscribers to more than one mobile operator*

this study should contribute to the understanding of the mobile phone user attitudes and behaviour in the emerging markets.

A. Derivation of Hypotheses

There is neither exact definition of the attitudes toward mobile phones (Tian, Shi and Yang, 2009) nor consensus among the researchers about the motivations for mobile phone use. In general, the research on motivation for mobile phones is based on the uses and gratifications approach, varying regarding the country of research, as well as the period of the conducted research.

In their study of mobile phone use gratifications, Leung and Wei (2000) found that mobility, immediacy and instrumentality are the strongest instrumental motives for mobile phone use, while intrinsic factors such as affection and sociability are the next most important factors. Additional studies in this field revealed the following attitudinal factors of the mobile phone use: necessity in modern times, cost efficiency, safety/security, dependency, negatives and functionality (Aoki and Downes, 2003); information-seeking, social utility, affection, fashion and status, mobility and accessibility (Wei and Lo, 2006); social escapism motivation, transaction-based security and privacy concerns, information motivation, interactive control motivation, socialization motivation and non-transactional privacy concerns (Jin and Villegas, 2008). Sense of security, sense of self-character extension, and sense of dependence were also acknowledged in a study conducted in China (Tian, Shi and Yang, 2009). In one of the few studies conducted in developing countries, Ozcan and Kocak (2003) provided an interesting insight on the mobile phone use in Turkey, identifying status/relaxation, instrumentality/business and security/sociability as uses and gratifications sought in the mobile phone use in Turkey. Based on these findings, we develop the following hypothesis:

H1: Mobile phone attitudes are multidimensional.

Customers are different in terms of the reasons for mobile phones use as well as in terms of the attitudes toward mobile phones. Zhang and Zheng (2007) distinguished four groups of users: ordinary users, business users, young/fashion explorers and technology fans. Constantiou, Damsgaard and Knutsen (2007) divided mobile users into following groups: talkers (adopters of voice services only), writers (adopters if SMS in addition to voice), photographers (adopters of MMS and camera-related services in addition to voice and SMS), and surfers (adopters of GPRS data services in addition to SMS, MMS and voice). Based on the conducted in-depth interview and Q methodology, Liu (2008) categorized the mobile phone users into four types: guanxi-expanding, illness-phobia, convenience-oriented and life-interrupting. According to the above mentioned, we can propose the following hypothesis: H2: It is possible to separate sufficiently different segments of mobile phone users.

The study of the relationship between attitudes toward mobile phones and mobile phone use has been examined by few researchers. The analysis of Jin and Park (2010) revealed that the interpersonal motives are the best predictor of the amount of mobile phone use: the stronger the motives, the more frequent the use of voice calls and text messaging. Tian, Shi and Yang (2009) revealed significant correlation between mobile phone attitudes and use. Having this in mind, we expect that people with different mobile phone usage patterns will also have different attitudes toward the mobile phones. Therefore, we propose the following hypotheses:

H3: Mobile phone attitudes differ among people regarding the years of mobile phone use.

H4: Mobile phone attitudes differ among people regarding the number of calls per day.

H5: Mobile phone attitudes differ among people regarding the average duration of a call.

III. RESEARCH METHODOLOGY

As the mobile phones are mostly used by young individuals in the Republic of Macedonia (97% of the age group of 16-29 own a mobile phone) (Macedonian agency for electronic communication), the sample for this study consists of university students ranging in age from 18-27.

Based on the previous research (Leung and Wei, 2000; Aoki and Downes, 2003; Wei and Lo, 2006), the authors have developed a questionnaire consisted of 24 five-point Likert-type scale items ranging from "strongly disagree" to "strongly agree". The questionnaire was face validated using exploratory interviews and some items were rephrased in order to reflect the intended meaning. The construct validity was further assessed using exploratory factor analysis while the scale reliability was assessed by calculating Cronbach's alpha coefficient.

The questionnaire was administered to undergraduate students at the largest state university Ss. Cyril and Methodius (Faculty of Economics) in Skopje in May 2011. The respondents were required to complete a questionnaire that solicited their views on different aspects of mobile phone use together with some basic demographic and behavioural information. A total of 223 questionnaires were distributed with 202 replies received, 180 (90.6%) of which were valid. The sample size is above the recommended minimum level of at least five times as many observations as the number of variables to be analyzed (Hair et al., 2006). The gender structure of the sample is as following: 124 females (68.89% of the total sample) and 56 males (31.11% of the total sample) which reflects the gender structure of the students at the Faculty of Economics in Skopje (in 2010 30.3% were males and 69.7% were females). The average age of the sample is 20.3 years.

Table 1 presents the descriptive statistics regarding the years of mobile phone use and the respondents' habits (average calls per day and average duration of a call).

Table 1. YEARS OF MOBILE PHONE USE AND RESPONDENTS' HABITS

	N	Minimum	Maximum	Mean	Std. deviation
Years of mobile phone use	180	5	11	7.91	1.44
Average calls per day (incoming and outgoing)	180	2	40	10.79	6.98
Average duration per call (in min.)	180	1	30	5.69	5.35

Source: Research results

Responses to the 24 item scale were subject to a principal component factor analysis with Varimax rotation. In the first run of exploratory factor analysis 7 factors were identified among which 2 were dropped (4 items were dropped (i11, i13, i15 and i17)) because the constructs to which they belong contained less than 3 items. The final run revealed five factors: fashion/status, dependency, added value, safety/security and negatives. These factor scores were further used for conducting cluster analysis and for analysis of variance among the groups of respondents with different usage patterns (years of mobile phone use, number of calls per day and average duration of a call).

IV. DATA ANALYSIS AND RESULTS

To identify the underlying attitudinal factors of the mobile phone use, factor analysis was used. The number of factors was obtained from a scree plot which showed that five factors had eigen values of 1 or higher. The five factors accounted for 55.063% of the total variance explained. The results of the exploratory factor analysis indicate acceptable level of convergent and discriminant validity. Table 2 shows the second run factor structure after Varimax factor rotation.

TABLE 2. FACTOR ANALYSIS RESULTS, FACTOR LOADINGS

Item No.		Mean	SD	Factors				
				1	**2**	**3**	**4**	**5**
	Fashion/status							
1	The mobile phone helps me to look fashionable	2.82	1.12	**0.76**	0.04	0.06	0.16	0.07
4	The mobile phone helps me to look stylish	2.69	1.12	**0.71**	0.18	0.16	0.11	0.18
8	Those people who don't have a mobile phone are out of touch with modern times	3.05	1.16	**0.47**	0.27	0.10	0.07	-0.12
9	The mobile phone is a status symbol	2.67	1.2	**0.62**	0.19	0.02	0.11	-0.06
14	Having a mobile phone is "cool"	2.97	1.1	**0.69**	-0.07	0.08	0.09	0.33
19	My mobile phone reflects my character	2.43	1.21	**0.58**	0.18	0.06	-0.14	0.02
	Dependency							
2	When I don't have my mobile phone with me, I feel disconnected	3.67	1.23	0.11	**0.74**	0.20	0.09	-0.04
6	I feel lost when I leave my mobile phone at home	3.61	1.29	0.10	**0.76**	0.13	0.23	0.05
21	I can't live without my mobile phone for a single day	2.73	1.42	0.24	**0.73**	0.02	0.01	0.16
22	A mobile phone is addictive	3.42	1.19	0.16	**0.59**	-0.18	-0.04	0.36
	Added value							
3	Non-calling functions on my mobile phone are very important to me	3.19	1.16	0.23	0.14	**0.82**	-0.01	0.07
7	I often use non-calling functions on my mobile phone	3.48	1.16	0.17	0.03	**0.84**	0.05	-0.08
23	I use the mobile phone to access the Interne	2.99	1.43	-0.03	0.05	**0.72**	-0.09	0.04
	Safety/security							
5	I use my mobile phone to keep my family from worrying about me	3.53	1.11	-0.01	0.04	-0.15	**0.79**	0.07
10	Having a mobile phone makes me feel safe when I am out of my home	3.64	1.12	0.21	0.31	0.05	**0.59**	0.17
18	With the mobile phone I can stay in touch with my family	4.29	0.88	0.08	0.02	0.06	**0.70**	-0.03
	Negatives							
12	The mobile phone often distracts me	2.91	1.08	0.14	0.15	0.09	-0.03	**0.74**
16	I feel upset when I miss a call to my mobile phone	2.46	1.03	0.41	0.00	0.09	0.12	**0.53**
20	Frequent use of the mobile phone means high exposure to harmful radiation	2.92	1.27	0.21	0.07	-0.10	0.35	**0.45**
24	The mobile phone interrupts my leisure time and my privacy	2.62	1.15	-0.28	0.10	-0.06	0.04	**0.60**
	Variance explained			22.96	10.64	8.17	6.86	6.43
	Cronbach's alpha			0.76	0.75	0.74	0.51	0.58

Source: Research results

Scale reliabilities in terms of the internal consistency measures were examined. Cronbach's coefficient alpha for the overall scale was 0.80 whereas subscale reliability measures for factors 1, 2, 3, 4 and 5 were 0.76, 0.75, 0.74, and 0.58, respectively.

The first factor: "fashion/status" named after Leung and Wei's term (2000) accounts for 22.96% of total explained variance and is linked to characteristics pertaining to status benefit of having a mobile phone and to the way people want to be perceived by others (cool, stylish, fashionable, and modern). The relatively low level of agreement (most of the mean values are below 3) on these statements could be a result of the widespread use of mobile phones which reduces their exclusivity. However, it is also highly likely that the respondents did not want to admit that their mobile phone is a status symbol. The second factor: "dependency", also identified by Aoki and Downes (2003) and by Tian, Shi and Yang (2009) accounts for 10.64% of the total explained variance and includes variables that are closely tied to the feelings of disconnection and being lost without a mobile phone. Nowadays, as the mobile phone has become a necessity, it is reasonable that the respondents agree with the statements listed under the dependency factor. The third factor labelled "added value" accounts for 8.17% of the total explained variance and refers to the non-calling functions of a mobile phone including the possibility to browse Internet. The low mean value for Internet use can be explained by the fact that Macedonia still has high prices for Internet access and free wi-fi access is not widely available. The fourth factor "safety/security" accounts for 6.86% of the total explained variance and includes variables which relate to feelings of safety and preventing family to worry when the person is out of home. These aspects seem to be of great importance for the young people included in the study since the mean values show high level of agreement with the statements. This can be explained by the fact that many students leave their home towns for studying and see the mobile phones as means of staying in touch with the family and feeling safe. The fifth factor "negatives", corresponding with the same factor identified by Aoki and Downes accounts for 6.43% of the total explained variance and includes variables relating to the negative characteristics of mobile phone use such as distraction, anxiety, harmful radiation and interruption of privacy and leisure time. The low mean values can be explained by the high dependency on the mobile phone which probably leads to ignorance of the negative aspects of its use.

The factor analysis revealed five factors indicating that mobile phone attitudes are multidimensional; therefore H1 is confirmed.

A. Mobile phones users' segments

In order to identify the number of clusters, we performed hierarchical cluster analysis which revealed two different segments of consumers regarding the usage of mobile phones (only items that remained after construct validity were taken into account). Further, K-means cluster analysis was employed (Table 3).

TABLE 3. K – MEANS CLUSTER ANALYSIS, ANOVA (N=180)

	Factors	Sample average (N=180)	Segment 1: Involved users (N=92)	Segment 2: Indifferent users (N=88)	df	F value	*p* value
1	Fashion/ status	2.773 (0.778)*	3.171 (0.630)	2.358 (0.700)	1	67.279	0.000
2	Dependency	3.358 (0.967)	3.908 (0.713)	2.784 (0.860)	1	91.364	0.000
3	Added value	3.220 (1.017)	3.768 (0.844)	2.648 (0.857)	1	78.112	0.000
4	Safety/ security	3.824 (0.768)	4.123 (0.595)	3.511 (0.805)	1	33.786	0.000
5	Negatives	2.728 (0.721)	2.927 (0.688)	2.520 (0.688)	1	15.452	0.000

* The value in the bracket stands for standard deviation.

Source: Research results

The characteristics of the two segments can be explained as follows. Segment 1 is labelled "involved users" and comprises 51.1% of the sample, while segment 2 is labelled "indifferent users" and comprises 48.9% of all respondents in the sample. Significant differences between the two segments are noticed in all five factors ($p<0.05$). The users from the first segment express above average interest in all five factors: they are more dependent on the mobile phone and therefore are more concerned about the negative aspects of the mobile phone use as well as the safety/security aspects; they are fashion/status oriented and are interested in added values provided by mobile phones. At the same time, the users from the second segment show below average concerns on all factors. Since the cluster analysis revealed two different segments, we can conclude that H2 is confirmed.

B. Mobile phone use

In order to reveal differences regarding the mobile phone usage among the young people in Macedonia, ANOVA test was used. The results are presented in Tables 4 and 5.

TABLE 4. YEARS OF MOBILE PHONE USE

Factors	5- 8 years		9-11 years		df	F value	p value
	Mean	Std. dev.	Mean	Std. dev.			
Fashion/status	2.77	0.79	2.78	0.75	1	0.015	0.904
Dependency	3.22	0.97	3.68	0.89	1	8.945	0.003
Added value	3.20	1.01	3.28	1.04	1	0.247	0.620
Safety/security	3.80	0.75	3.88	0.82	1	0.363	0.548
Negatives	2.70	0.69	2.79	0.79	1	0.604	0.438

Source: Research results

Regarding the years of mobile phone use, the ANOVA test showed significant differences ($p<0.05$) between the two groups only in the dependency factor. As expected, the group that has been using the mobile phone for 9 - 11 years is more dependent on it, in comparison with the group that owns a mobile phone for 5 - 8 years. The results show that there are no significant differences in the other factors and that the two groups are indifferent to the fashion/status and negative aspects of the mobile phone use (Table 4). Consequently, H4 is confirmed only in the dependency factor.

TABLE 5. NUMBER OF CALLS PER DAY AND AVERAGE DURATION OF CALL

Factors	Number of calls per day						Average duration of a call					
	0-9 calls per day Mean (std. dev.)	10-15 calls per day Mean (std. dev.)	16-40 calls per day Mean (std. dev.)	df	F value	p value	1-3 min. Mean (std. dev.)	4-9 min. Mean (std. dev.)	10-30 min. Mean (std. dev.)	df	F value	p value
Fashion/ Status	2.70 (0.85)	2.81 (0.73)	2.87 (0.71)	2	0.711	0.493	2.69 (0.81)	2.90 (0.75)	2.78 (0.74)	2	1.229	0.295
Dependency	3.17 (0.96)	3.39 (0.99)	3.74 (0.84)	2	4.421	0.013	3.18 (1.02)	3.36 (0.97)	3.74 (0.72)	2	4.692	0.010
Added value	3.12 (1.04)	3.16 (0.98)	3.57 (0.97)	2	2.507	0.084	3.20 (0.98)	3.16 (1.07)	3.34 (1.04)	2	0.369	0.692
Safety/ Security	3.71 (0.78)	3.87 (0.75)	4.00 (0.76)	2	1.864	0.158	3.61 (0.81)	4.00 (0.72)	4.04 (0.60)	2	6.702	0.002
Negatives	2.51 (0.74)	2.82 (0.67)	3.05 (0.63)	2	8.150	0.000	2.60 (0.73)	2.83 (0.75)	2.87 (0.63)	2	2.725	0.068

Source: Research results

Regarding the average number of calls per day, the ANOVA test revealed significant differences ($p<0.05$) on two factors (negatives and dependency), while regarding the average duration of a call, significant differences were revealed on safety/security and dependency. Respondents with higher number of calls per day demonstrate higher level of dependency and are more concerned about the negative aspects of the mobile phone use, while the users with longer average duration of a call are more concerned in safety/security and dependency, compared to the users who have shorter phone communication. Since there are no significant differences among the groups of respondents on the other factors (Table 5), H5 is supported only in two factors (negatives and dependency), while H6 is accepted only in the safety/security and dependency aspects of mobile phone use.

V. DISCUSSIONS

This research investigated the motivations for mobile phone usage among university students who participated in the research by reporting their attitudes and perceptions toward mobile phones. The principal component factor analysis revealed 5 different factors: fashion/status,

dependency, added value, safety/security and negatives. The findings indicate that university students in the Republic of Macedonia show the highest concern in the safety/security aspects. On the other hand, they show the lowest interest in the negative and in the fashion/status aspects of mobile phone usage. The dependency and added value factors received average values. The results of this study are largely consistent with the initially identified intrinsic (social) and instrumental (task-oriented) motives, but offer insights in the specifics of the analyzed emerging market.

The additionally performed cluster analysis showed existence of two basic segments with significant differences in all five factors. The results of the ANOVA test suggest that as the years of mobile phone use, the number of calls per day and the average duration of a call increase, the dependency on the mobile phone increases too. People who speak longer on the mobile phone are more socially-oriented, they want to be in touch with the family and to feel safe out of home. Concerning the negative aspects, significant differences were shown only regarding the number of calls per day.

As a managerial implication, this research provides in-depth knowledge of the demographic, psychographic and behavioural characteristics of the mobile phone users. Having in mind the multidimensionality of the attitudes, managers should create marketing offers by addressing the identified factors. Specifically, managers should focus on the safety/security, dependency and added value aspects as major drivers of mobile phone use. According to the cluster analysis, mobile phone operators should adapt their marketing strategies according to the characteristics of the two identified user segments (involved and indifferent users). In addition, the observed differences among the mobile phone usage patterns should also serve as a basis for developing effective marketing strategies. For example, in targeting users who have had a mobile phone for long time (9 to 11 years), the company can use marketing communication appeals pointing out the feelings of disconnection and being lost without the phone as important points of concern.

The research has several limitations which are important to be recognized in order to serve as a basis for future valuable research. Regarding the sample, further research might be oriented toward general customers and not just university students who have limited finances and therefore behave economically. Future research can also investigate the differences among people on the basis of the non-calling functions mostly used by the respondents as well as investigate the reasons for such behaviour. Additionally, with the rapid growth and sales of mobile phones with multimedia capabilities, researching each of the multimedia characteristics might be a challenging task.

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STAV MLADIH PREMA MOBILNIM TELEFONIMA U MAKEDONIJI

Sažetak: Ovaj rad istražuje navike i stavove prema korištenju mobilnih telefona među mladima u Republici Makedoniji. Podaci dobiveni anketom su analizirani istraživačkom faktorskom analizom, klaster analizom i ANOVA analizom. Faktorska analiza je uočila pet različitih faktora koji su interpretirani kao: moda/status, ovisnost, dodana vrijednost, sigurnost i negativnosti. Klaster analiza je proizvela dva segmenta: uključene korisnike mobilnih telefona i nezainteresirane korisnike mobilnih telefona. ANOVA test je otkrio razlike u stavovima prema mobilnim telefonima u odnosu na godine korištenja, broj poziva na dan i prosječnu dužinu trajanja poziva. Rezultati daju korisne implikacije za razvoj efikasnih marketinških strategija.

Ključne riječi: mobilni telefoni, osobni faktori, korisnički segmenti