

Kabesheva A.O.

On the method of diagnosis of mobile phone users` psycho-emotional peculiarities

Kabesheva Alisa Oleksandrivna, Graduate Student of the Department of Theory and Methods of Applied Psychology South Ukrainian national Pedagogical University named after K.D. Ushinsky, Odessa, Ukraine

Abstract. In this work a methodology that detects the level and characteristics of using a mobile phone and its probabilistic impact on the individual emotional sphere was elaborated. It is shown that despite the subject topicality of means of mobile communication individual psychological impact, there are only indirect methods that allow studying this process. The conditional theoretical model of the psychological interaction structure in the system "man – means of mobile communication" was worked out, and it is seen, in the mentioned structure the leading components for the individual are, firstly, means of mobile connection that allow to interact with another personality and use other information resources. What relates to the personality peculiarities, is that they are represented conditionally at the level of so-called endogenous factors that include communicative, emotive, conative, cognitive, motivational components. Thereby, from our point of view we can primarily include cybersocialization to endogenous factors, as well as interaction in society according to accepted norms and rules etc. In this article also was testing of questionnaire reliability, validity and discriminativity. For this there was made a collection of empirical data, which was attended by 200 persons aged 18-23 years. The approbation of mentioned methodology which showed that it is internally self-consistent, and discriminative and valid psycho diagnostic tool was conducted.

Keywords: mobile phone, methodology, psycho-emotional peculiarities of using a mobile phone

Modern society can with certainty be called not only the high technology era, but also active communication era due to communications through mobile phone, Internet social networks, etc. The impact of mobile phone on individual development in the context of psychological science becomes topical and simultaneously not fully explored problem.

Attempts to create diagnosis methods of mobile phone users` psycho-emotional peculiarities are observed in studies of A. Byanchi. And J. G. Phillips, L. Fortunati, J. Vincent, R. Ling, K. Young and so on. Generalization of the last researches shows that unfortunately these are mainly diagnostic procedures fragments that do not provide a holistic representation of mentioned phenomena. There are only indirect methods [6, 8, 9, 10, etc.] that are aimed at assessment of the wave effects on the human body and psyche, and also on so-called psychological addiction. These tests can be included to the last ones: tests on mobile addiction detection (V. Burdyha, A.Byanchi) on Internet addiction (K. Young, A. Zhychkina, S. Krasnov, G. Arkad'ev etc.), various addictions predisposition diagnosis (G. Lozova) and others.

As it is seen, the overwhelming number of proposed

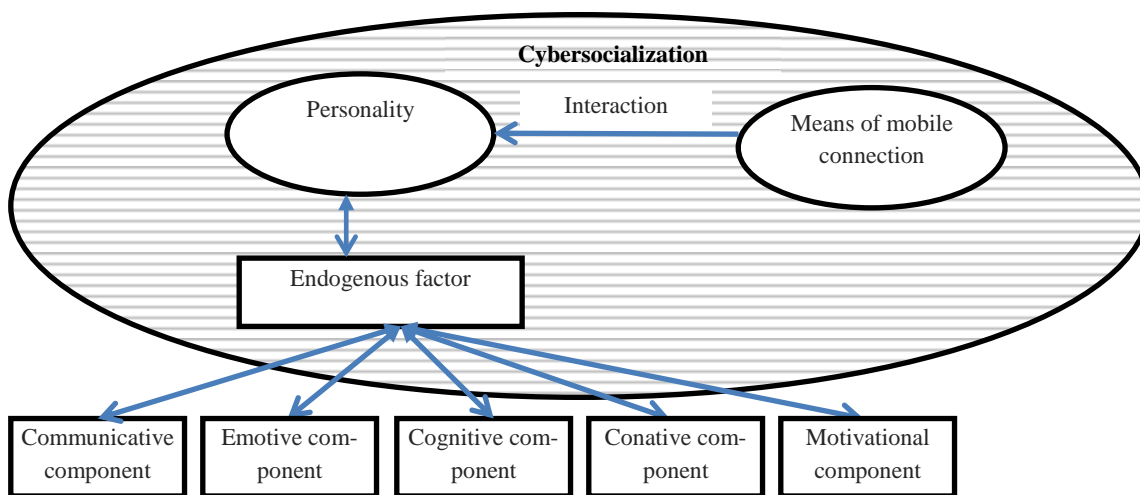
methods is aimed to diagnose different aspects of psychological addiction that prevents to fully define the mobile phone users psycho-emotional peculiarities.

Considering the above information, **the aim of our study** is to develop special methodology which could enable to study together the individual psycho-emotional traits and particularity of interaction with a mobile phone.

To achieve the set goal the following **tasks** were settled:

- firstly, to define the theoretical and methodological prerequisites for methodology creation;
- secondly, to develop a method that would allow to determine the place of mobile phone in the students mental activity, to identify its usage peculiarities and the probabilistic impact on the individual emotional sphere;
- thirdly, to test of mentioned methodology and highlight certain normative requirements for its usage.

With consideration of various generalized researches [1, 3, 8], and the pilot study, the constructed psychological interaction structure in the system "man-means of mobile connection" appeared as a conceptual prerequisite, and is shown on Picture 1.



Picture 1. The psychological interaction structure in the system "man-means of mobile connection"

As it is seen, in the mentioned structure the leading components for the individual are, firstly, means of mobile connection that allow to interact with another personality and use other information resources. What relates to the personality peculiarities, is that they are represented conditionally at the level of so-called endogenous factors that include communicative, emotive, conative, cognitive, motivational components.

Thereby, from our point of view we can primarily include cybersocialization to endogenous factors, as well as interaction in society according to accepted norms and rules etc.

It should be noted that in the present studies [4, 5, etc.], the problem of cybersocialization gets a significant topicality. Therefore, from the cybersocialization spread viewpoint the more important is not the number and breadth of mobile phones usage, but the impact that they make on the individual. Otherwise, the usage of mobile phones would not take place among psychological phenomena, but would remain only a means of meeting present needs.

Thereby, to disclose the content of endogenous factor, we specify its main components that appear as certain methodology theoretical basis which is being developed by us, and the indicators interpretation received with its help.

Thus, the communicative component in our study describes the individual attitude peculiarities to communication mediated by cell phone. This component includes several components: the intensity of mobile communication, by which we mean the tendency to the broad communication, long-term communication on a mobile phone, availability of a friends large number in the phone book and frequent making new acquaintance for the next communication through mobile phone; an initiative of mobile communication - tendency to initiate a mobile communication, the constant desire to call first, a need to be friendly for the opportunity to be included in a conversation with people on their own initiative and maintain it in accordance with his aims.

This component allows specifying data about the communication orientation also enables to estimate the average calls duration, a number of calls per day and so on. In our view, a mobile communication is compensated by latent demand for live communication.

What relates to the emotive component, it characterizes the emotional sphere of a person who communicates with a help of mobile phone including regulation on an emotional level. We believe that mobile communication is an important determinant of individual's emotional state, so this scale shows how mobile phone usage affects personality's emotional state, on which level the mobile phone is his source of emotions. Herewith we are interested in changes in the people conditions that can appear while interaction with the device itself (talking, watching movies, music, reading and so on). Thereby, the emotive component shows how an individual is bind to emotions that are experienced, transferred or created during communication carried out by means of electronic devices, and is the mobile provider product.

While investigation of conative component, we can determine its actual reflection of the regulation and coordination level of interactions with a mobile phone namely the

personality regulation of own direct interaction with a mobile device is carried out with a help of this scale. So the conative component indicates that the person in interaction with mobile phone is able to decently regulate his emotions, his behavior, the time spent on mobile communication or unable to adequately use the mobile phone as a means of communication.

The cognitive component in our study characterizes the information process of human interaction with a mobile phone and identifies the level of mobile phone usage to find the necessary information, as well as the information content newness factor and as an organizer. The interaction of man with mobile devices is in a large information environment - people can work with various information forms that satisfy any level of the individual cognitive needs. As a result, a person does not distinguish information by importance and always appeals to his mobile phone. Thereby, this component shows how an individual is bind to the phone as to an information tool.

As for the motivational component it should be noted that it reflects what motivates a person to use a mobile device, specifies the reasons of communicating on the phone. High manifestation level of this component indicates that a person uses a mobile phone to increase the status, prestige, to feel himself needed, not alone and he believes that interaction with a mobile phone makes his life brighter, etc.

Taking in account these and other assumptions, the method construction of diagnosis of mobile phone users' psycho-emotional peculiarities was carried out in two stages: on the first stage the questionnaire was developed and it allowed evaluating the role and place of the mobile phone in the students' mental activity. This questionnaire determined the attitude of students to mobile phone, the mobile communication impact peculiarities on psycho-emotional sphere and data about the direction of mobile communication. The original version of the questionnaire was included in the aerobic study, which made it possible to conduct the empirical normalization selected scales and improve the questionnaire. On the second stage we worked out the methodology based on the questionnaire. Hereafter all questions were grouped according to the previously selected components of endogenous interact factor in the system "man-means of mobile connection". (Fig.1) In addition, the methodology included additional 3 scales.

The final version of the methodology "Diagnosis of mobile phone users' psycho-emotional peculiarities" contains 73 statements, grouped into 8 scales: communication scale (9 questions), emotive scale (9 questions), conative scale (9 questions), cognitive scale (9 questions), motivational scale (9 questions), scale of addiction predisposition (9 questions), subjective estimate scale of their attitude to mobile phone (9 questions) and neutral scale (8 questions). The selected scales enable to diagnose the level and features of mobile phone usage.

The proposed methodology also includes written instruction; form for answers where there are three options for each question; scheme of processing and results interpretation.

Solving the following task of our study, there was conducted methodology testing that began with checking the

simplicity and clarity of each question for what a questionnaire was offered to 50 students who study on the specialty "Psychology" to indicate not properly understood, difficult to understand statements. As a result, some questions were replaced by other versions, but the number of points remained unchanged. Hereafter, there was testing of questionnaire reliability, validity and discriminativity. For this

there was made a collection of empirical data, which was attended by 200 persons aged 18-23 years.

Thereby, the internal consistency of the test was checked by splitting the test and all of its scales into two parts, with subsequent determination of the correlation level of these parts between each other. To perform this procedure the Pearson product-moment coefficient was applied.

Table 1. The meaning of correlation coefficients obtained for determination of test reliability by splitting method (n = 200)

Indicators	COM	EMO	CON	COG	MOT	ADD	SUB E
r	518**	414**	240**	271**	402**	456**	338**

Note 1: here and onward in the study while presentation the correlation results: 1) zeros and comas are omitted; 2) mark ** indicates correlation coefficient $** < 0.01$; mark * < 0.05 ; 3) n = 200 studied ones.

Note 2: Here and onward in the study the following abbreviations are used: COM- communicative scale, EMO- emotive scale, CON- conative scale, COG- cognitive scale, MOT- motivational scale, ADD- scale of addiction predisposition, SUB E- scale of subjective estimate of own attitude to a mobile phone.

As it is shown in this table, satisfactory reliability - con-

sistency of test is inherent to all methodology scales: to the first (r = 0,518), to the second (r = 0,414), to the third (r = 0,240), to the fourth (r = 0,271), to the fifth (r = 0.402), to the sixth (r = 0,456) and to the seventh (r = 0,338). As it is seen, the meaning of Pearson product-moment coefficient for all indicators is above critical, so the test can be considered reliable.

On the next phase of our work the resistance test time was determined by retesting studied ones after 1 month and subsequent calculating of Pearson product-moment coefficient between the results of these two measurements.

Table 2. The meaning of correlation coefficients obtained for determination of test reliability by repeated testing (n = 200)

Indicators	COM	EMO	CON	COG	MOT	ADD	SUB E	TOT
r	0,76	0,87	0,81	0,86	0,82	0,81	0,70	0,93

The received data shows that satisfactory reliability - resistance to the test is inherent to a general indicator (r = 0,93) as well as to all test scales: the first (r = 0,72), the second (r = 0,87), the third (r = 0 81), the fourth (r = 0,86), the fifth (r = 0,82), the sixth (r = 0,81) and seventh (r = 0,70). Thereby, the received results indicate the reliability of the

questionnaire.

The competitive validity was evaluated in accordance to test results correlation with the methodology data of Adriana Byanchi and James G. Phillips, "Investigation the problem of mobile phone use". The data presented by the methodology authors shows its high validity [7].

Table 3. The meaning of correlation coefficient obtained while testing the competitive validity (n = 200)

Indicators of authors` method	COM	EMO	CON	COG	MOT	ADD	SUB E	TOT
A.Byanchi`s method	618**	598**	653**	452**	482**	575**	354**	714**

As it is seen, all the indicators of developed methodology significantly correlate with the methodology of A. Byanchi and James G. Phillips that shows its satisfactory competitive validity.

As for the discriminativity of the test, it was measured by the Ferguson coefficient δ , for which the meanings of δ , that

exceeds the 0.8 score, indicate the high sensitivity of the test.

Basing on the above coefficient, it can be said that the sensitivity of the test, its ability to distinguish studied ones with different severity of mental phenomena that is studied appears high.

Table 4. The meaning of Ferguson coefficient δ (n = 200)

Indicators	COM	EMO	CON	COG	MOT	SUB E	TOT
δ	0,91	0,90	0,90	0,88	0,92	0,92	0,91

The following conclusions can be made on the results basement:

1. It is shown that despite the subject topicality of means of mobile communication individual psychological impact, there are only indirect methods that allow studying this process.

2. The conditional theoretical model of the psychological interaction structure in the system "man – means of mobile

communication" was worked out, and it includes the following components: communicative, emotive, conative, cognitive, motivational.

3. The methodology "Diagnosis of mobile phone users` psycho-emotional peculiarities" was constructed and it allows to diagnose the level and peculiarities of mobile phone usage.

4. The methodology testing on a limited sample proves its validity and reliability.

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Кабешева А.А. О методике диагностики психо-эмоциональных особенностей пользователей мобильным телефоном

Аннотация. В данной работе разработана методика, которая выявляет уровень и особенности использования мобильного телефона и его вероятное влияние на эмоциональную сферу личности. Показано, что несмотря на актуальность темы психологического влияния средств мобильной связи на личность, существуют лишь опосредованные методики, которые позволяют изучить этот процесс. Построена условная теоретическая модель структуры психологического взаимодействия в системе "человек - средства мобильной связи", в отмеченной структуре в качестве ведущих компонентов для личности выступают, во-первых, средства мобильной связи, которые позволяют взаимодействовать с другой личностью и использовать другие информационные ресурсы. Что же касается личностных особенностей взаимодействия со средствами мобильной связи, то они представлены нами условно на уровне, так называемого эндогенного фактора, который включает коммуникативный, эмотивный, конативный, когнитивный, мотивационный компоненты. К экзогенным факторам, на наш взгляд, в первую очередь можно отнести киберсоциализацию, а также взаимодействие в обществе согласно принятым нормам и правилам.

Также в статье осуществлялась проверка надежности, валидности и дискриминативности методики, для чего было проведено сбор эмпирического материала, в котором участвовали 200 студентов в возрасте 18-23 лет. Апробация авторской методики подтвердила, что она является внутренне непротиворечивым, дискриминативным и валидным психодиагностическим инструментом.

Ключевые слова: мобильный телефон, методика, психо-эмоциональные особенности использования мобильного телефона