

TECHNOPHOBIA AS A CULTURAL AND PSYCHOLOGICAL PHENOMENON: Theoretical Analysis¹

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ABSTRACT

Today we can talk about a sufficient formation of both negative and positive attitudes towards the introduction of new technologies. This is the technophobia that continued to be fueled by such objective factors as job slashing caused by events and new inventions. Technophobia includes cognitive, emotional and behavioral components. Along with individual factors (self-efficacy, open-mindedness, anxiety level, user's experience, emotional state, etc.), the formation of technophobia is influenced by interpersonal factors (communication with colleagues, friends and relatives on the subject of technologies), group and

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intergroup factors (clash of interests of different relevant groups in connection with the appearance of new technologies, group stereotypes – representations of typical users of the given technology, its developers, etc.), as well as societal factors (mass culture and mass media, the level of technological and economic development of a country, cross-cultural features). In this way, this is an increasingly important phenomenon, since the speed of innovation is very high. Thus, the purpose of this study is to present a theoretical analysis on this subject and to highlight the importance of conducting other research on this subject.

Keywords: Technofobia. Analysis. Factor.

A TECNOFOBIA COMO FENÔMENO CULTURAL E PSICOLÓGICO: análise teórica

RESUMO

Hoje podemos falar de uma formação suficiente de atitudes negativas e positivas em relação à introdução de novas tecnologias. Essa é a tecnofobia que continuou a ser alimentada por fatores objetivos, como a redução de postos de trabalho causada por eventos e novas invenções. A tecnofobia inclui componentes cognitivos, emocionais e comportamentais. Juntamente com fatores individuais (autoeficácia, mente aberta, nível de ansiedade, experiência do usuário, estado emocional, etc.), a formação da tecnofobia é influenciada por fatores interpessoais (comunicação com colegas, amigos e parentes sobre o assunto das tecnologias), fatores grupais e intergrupais (choque de interesses de diferentes grupos relevantes em conexão com o surgimento de novas tecnologias, estereótipos de grupo - representações de usuários típicos da tecnologia dada, seus desenvolvedores, etc.), bem como fatores sociais (cultura de massa e massa mídia, o nível de desenvolvimento tecnológico e econômico de um país, características interculturais). Dessa forma, trata-se de um fenômeno cada vez

mais importante, pois a velocidade da inovação é muito alta. Assim, a proposta deste estudo é apresentar uma análise teórica sobre este assunto e evidenciar a importância de realizar outras pesquisas sobre este assunto.

Palavras-chave: *Tecnofobia. Análise. Fator.*

1 INTRODUCTION

Having appeared in the late XXVIIth century in reaction to the Industrial Revolution, technophobia continued to be fueled by such objective factors as job slashing caused by mechanization (XIXth century) and later by automation of labor-intensive processes (XX – XXIst centuries); by the use of weapon of mass destruction (toxic gas attacks in the First World War, the demolition of Hiroshima and Nagasaki by atom bombs in the Second World War); by the growth of scales of technogenic catastrophes, by the ecological consequences of application of chemical and biological technologies.

So, today we can talk about a sufficient formation of both negative and positive attitudes towards the introduction of new technologies.

With the advent of Internet these factors were replenished by threats connected with cybercrime, as well as with widening capabilities of monitor and control of human behavior by means of digital technologies.

The images of the “dangerous technology” were fixed and got widespread in the popular consciousness owing to cinematography – suffice it to recall such film epics as “Terminator”, “Matrix”, “Resident Evil”, “Screamers”, the confrontation of the natural and artificial in the blockbusters “I, Robot” and “Avatar”. Technoptimism of science confronts technopessimism of scientific fiction which is depicted in books, comics, movies, computer games, etc. (Dinello, 2005). It is no

wonder that the negative attitude to new technologies can be stable even despite the positive media coverage (Metag, Marcinkowski, 2014).

New technologies are included in the system of personal psychological relations (Poznjakov, 2013), in the system of social perceptions of the future (Emel'janova, Drobysheva, 2013; Nestik, 2014). The socio-psychological context of technophobia becomes apparent as we stop considering the users of new technology as passive recipients of technological progress and recognize them as an active participants in technology formation. This type of attitudes towards technology and global technological risks that is offered by the constructionist and interactionist paradigms, which have gained wide recognition in cultural anthropology: this conception of social engineering of technology by Pinch T.J. and Bijker W.E., (Pinch, Bijker, 2012) the domestication model of R. Silverstone (Silverstone, 2006), and the actor-network theory by B. Latour.

2 DEFINITION OF TECHNOPHOBIA AND TECHNO-PESSIMISM

According to the most quoted definition, technophobia is 1) internal resistance arising in people when they think or speak about a new technology, 2) fear or anxiety connected with the use of a technology; 3) hostile or aggressive attitudes to a new technology (Brosnan, 1998). This phenomenon has cognitive, emotional and behavioural components. It is made up of 1) negatively coloured images of a new technology as a whole and of its impact on the society; 2) anxiety over the current and anticipated interaction with technology; 3) self-reproach when using technology. The research conducted by S. Thorpe and M. Brosnan discovered that clinical technophobes have symptoms which are similar to feelings experienced by arachnophobes upon coming into contact with spiders (Thorpe, Brosnan, 2007).

2.1 Social predictors of technophobia

At present, the pace of technological progress is outstripping the ability of society to comprehend changes and elaborate social agreements on the use of new technological abilities. The increasing rate of changes in technology makes the issue of its comprehension by modern human being, increases the demand for a conscious, reflexive attitude of society towards the technologies and its management. The systematization of research results of recent decades and the recourse to research from the beginning of the era of new technologies (the first third of the XX century) allows us to signify the continuum "tehnoptimism" - "technopessimism". The concepts of "technophobia" and "tehnophilia" are analogous, but more likely to have medical and social tinge. But there's still enough white spots in this area.

According to the specialists' research, about half of people in the modern world are susceptible to some forms of technophobia or other (Brosnan, 1998). Collective fears regarding technologies are based on objective reasons. Much time often passes between the creation of a new technology and the detection of its negative consequences. Unpredictability of consequences of new technologies is aggravated by the absence of social and humanitarian assessment of scientific discoveries as well as by the absence of unified position among the academic community concerning social consequences of technologies (Garanina, 2012).

2.2 Cross-cultural differences

The research reveals cross-cultural differences in the level of technophobia. At the dawn of internet era only 34% of students in the USA experienced anxiety

about computers, whereas in Japan and India – 58% and 82% respectively (Weil, Rosen, 1995). Such differences may be explained not only by the level of technological and economic development of a country but also by its culture (Zakour, 2007). For instance, long-term orientation decreases the perceivable difficulty of mastering a technology whilst avoiding uncertainty increases it; individualism weakens the influence of significant others on the attitude to technology, and cultural masculinity increases the significance of the expected benefits from the use of technology (Nistor et al., 2014).

2.3 Gender aspects of technophobia

Technophobia is more characteristic of women than of men (Gilbert et al., 2003; Voiskunsky, 2004, 2011). Perhaps, it is due to gender differences in approaches to mastering new technologies. Thus, men are more eager to make additional independent efforts to learn how to use a new technology or a device whereas opportunities of technical support and of special instruction are especially important to women (Wang, Wang, 2010).

2.4 Personal aspects of technophobia

Technophobia is related to a number of personal characteristics such as the level of anxiety, cognitive style and to the fullest extent - self-efficacy (Osiceanu, 2015). The interest in new technologies is associated with a number of personal traits according to the Big Five scale. It is more typical of respondents with a high level of open-mindedness and introversion and less characteristic of people with high personal responsibility (Kennedy, Funk, 2015).

Research of technophobia among Internet users shows that it is negatively related to the number of hours of continuous use but it doesn't reveal any connection with the overall frequency of Internet use (Joiner et al., 2012). In other words, the peculiarity of technophobia is a negative attitude to technology when it is impossible to avoid contact with it.

In his investigation of this phenomenon of technophobia M. Brosnan associates the readiness to use the technology with the estimation of its utility for the solution of a specific problem. The perceivable utility in its turn is determined by the preceding experience, by the assessment of labour-intensiveness of mastering a technology, as well as by the level of anxiety, which depends on the experienced feeling of pleasure when using a technology as well as on the self-efficacy (Brosnan, 1998).

2.5 Emotional experiences and technophobia

Research shows that the attitude to new technologies is closely connected with hedonistic motivation, anticipated benefit from the technology, price affordability and expenses, purposes of use and habits (Brown, Venkatesh 2005; Limayem et al. 2007). As it turned out, emotional sufferings significantly influence the readiness to use information technologies. However, the direction of this impact depends not on positive emotions but on their social significance. For example, the feeling of pleasure decreases the readiness to explore the capabilities of the new technology whilst anger about a new technology has indirect positive impact on the readiness to use it since that alleviates obtaining social support which accelerates training in its turn; the anxiety about new technologies has the same contradictory effect (Beaudry, Pinsonneault, 2010).

2.6 Technophobia and trust

Attitudes to new technologies are like relations between people. They can be considered as more or less confidential (Kupreychenko, 2012). Trust in technologies means an individual's specific psychological attitude which reflects notions, emotional reactions and readiness for performing job tasks by means of technologies. According to the research conducted by A.A. Oboznov and A. Akimova, the trust in technologies can vary in the assessment of their reliability, i.e. of stability and correct operation as well as in the assessment of an individual of their own ability to operate this technology (Oboznov, Akimova, 2013). Apparently, technophobia can be characterized as more or less explicit distrust of technologies.

Nevertheless, taking into account the fact that technophobes cannot fully rule out the use of technology, one should assume that the attitude to technology as socially dangerous can go with a high estimation of one's own ability to use it.

3 DISCUSSION

Hence, it has been proved that technophobia and technophilia are a social-psychological phenomenon, the origin of which cannot be explained only by personal characteristics of users. Technophobia includes cognitive, emotional and behavioral components. Along with individual factors (self-efficacy, open-mindedness, anxiety level, user's experience, emotional state, etc.), the formation of technophobia is influenced by interpersonal factors (communication with colleagues, friends and relatives on the subject of technologies), group and intergroup factors (clash of interests of different relevant groups in connection with the appearance of new technologies, group stereotypes – representations of

typical users of the given technology, its developers, etc.), as well as societal factors (mass culture and mass media, the level of technological and economic development of a country, cross-cultural features).

In conclusion, one could outline several directions which appear to be the most promising for studying the phenomenon of technophobia. Firstly, that is studying the attitude of a person or of a group to new digital technologies of “smart environment”, that are only entering the Russian market or being developed: 3D – printers, augmented reality and telepresence technologies, consequences of the use of Big Data for user control, the formation of Internet of things, in the long-term – the appearance of Neuronet. Understanding how these representations of new technologies are constructed not only has practical value for innovative companies but it will enable us to find ways to overcome technophobia on a scale of big social groups and of the whole society, points the way to the formation of the reflexive and responsible position of a digital citizen in the face of technological risks.

Secondly, the development of semantic internet, of artificial intellect and infiltration of expert systems into everyday life pose another question: how is the attitude to technologies is formed in the situation when the technology itself is an active subject of relations? With the development of smart environments and internet of things the idea of a technical subject ceases to be a metaphor. Just imagine a picture that you have seen in a museum that starts sending you emails or a fridge that counts calories in your diet and doesn't open since your smartphone has informed the former that you haven't made enough steps today. The development of digital technologies raises the question not only about trust of human in machine, but also about a wider range of psychological states which used to be considered typical only of interpersonal relations.

Thirdly, the role of group and intergroup factors in the appearance and transmission of technophobia remains understudied. The mechanisms of transmission of attitude from old-timers to novices are not clear in small groups: labour and educative collectives, within a family and among friends. We still know very little about how the attitude to technologies depends on multiple group identity of users, their representations about other users, developers, investors and other interested parties. In this regard social-psychological factors influencing the formation of the image of technology in users' communities and social networks are of great interest. Our data as well as research of other specialists indicate that it would be a mistake to associate technophobia with low technical and digital literacy of users. Mastering new technologies with different purposes, different groups of users construct different technological frames, - collective representations, justifying and fortifying trust or distrust of technology.

Finally, studying different means of users' participation in the creation of new digital products and services, the so-called co-creation (co-authorship with clients) is becoming more relevant. A new paradigm of business models and ways of interaction with user is being formed when the user turns from a consumer into a full-fledged creator (Ramaswamy, Ozcan, 2014; Verleye et al., 2015). Can technophobes be involved into these practices? How do they react to the involvement in the dialogue and co-authorship through new digital services? What role do other users play in that? Due to some research, one can assume that bad experience of such joint cooperation can lead to technophobia (Heidenreich et al., 2015). Obviously, with the development of digital world technophobia turns from a common problem of engineering psychology into a more pressing social-psychological problem, arising and manifesting in interpersonal and intergroup interaction.

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