From metaphorical information overflow and overload to real stress: Theoretical background, empirical findings, and applications

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ABSTRACT

The paper presents the reader with a psychological analysis of one of the results of the global phenomenon of information overload and how it translates into an observable psychological outcome, information stress, thus hindering the process of decision-making. Both, the anchoring in the broader context of civilizational changes and, in the particular, in the field of psychology, especially individual differences and stress psychology, are provided, followed by a series of results of our own investigations of managers and emerging adults (entering the job market). Particularly, self-control and the styles of thinking are presented as correlates of increased infostress. We then explore the implications these results might have for the selection and training of managers.

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1. Introduction

The goal we assumed in writing this paper is both theoretical and practical. The theoretical layer presents the phenomenon of information overload from the perspective of individual differences psychology, while the practical one pertains to the conclusions that might be drawn from the scientific findings on infostress. The chain of deduction we present consists of three elements. We begin with a wider context of information stress, which is globalization in its many forms—infostress is seen as one of the results of global (technological) changes. We then discuss the nature of what elicits infostress, i.e., the disparity between the rapidly growing production of information and the limited ability of the human mind to process it. Both the historical and current perspectives are presented, with the focus on contemporary situation. The psychological consequences of the confrontation of the mind with overstimulation are presented from two theoretical standpoints.

The older medical standpoint relates to the exchange of information between an organism and its surroundings. It proposes the existence of “information metabolism” by analogy to the metabolism of matter and energy (Kępiński, 2003). A newer, psychological conceptualization is based on the premise that everyday existence in an information-rich environment, therefore in a state of perpetual overload, can (and often does) lead to discomfort, which in turn can be construed as a new type of stress. We (Ledzińska, 2001, 2009, 2012) proposed the term “information stress,” or “infostress,” arguing that it needs to be distinguished from the other varieties of civilization stress. In this paper, four main aspects of information stress, which are critical to its understanding, are presented: (a) the theoretical and empirical arguments for distinguishing infostress from other types of stress, (b) the psychological mechanism fueling it, (c) the measurement of infostress, and (d) empirically demonstrated individual predictors of the intensity of infostress experience.

The third part of this paper covers the practical value of the presented findings, accenting the overlap between the interests of psychologists and management experts, which is the search for the means to moderate the (psychological and organizational) outcomes of the exponential growth of data.

2. Globalization as the context of analysis

2.1. In search for the meaning of globalization

The title of this paper relates to a remark made by Czarniawska
and Löfgren, 2012 that the terms “information overflow” and “overload” are in fact metaphors and not actual psychological processes. Although Zygmunt Bauman (2000, p.5) claims that “the fate of all popular words is similar, the more they attempt to explain, the less clear they become,” we believe that even in the particular field of individual differences psychology, we need to surrender ourselves to those immensely “popular words” as the context of our reflection. Their usefulness lies in the fact that they inspire researchers to assess the mechanisms behind the plethora of processes they describe. At the same time, they vividly express how holistic those processes are. Both umbrella terms, overflow and overload, can be approached from several standpoints such as sociological (Callon, 1998), socio-philosophical (Siebert, Machesky, & Insall, 2015), and managerial, especially the management of information (Czarniawska & Löfgren, 2013), including our own focus—managing information on individual level, particularly by professional managers. In addition, both are deeply rooted in another metaphor—globalization.

Although the word globalization is epidemic in publications, mass-media, or even education, defining its meaning is no small task. Thankfully, the overflow of definitions and the resulting variety of meanings of the concept can be broadly divided into two main streams. They each involve different methodologies, conceptualizations, and explanations for reality. Their common ground is the conviction that the substantial changes in the environment influence people individually and sociologically (Stiglitz, 2004, 2007).

The representatives of the first of those two streams assert that globalization can be conceptualized as a plethora of changes and attempt to catalog their consequences and study them. Thomas Friedman, for instance, claims that globalization is a “dominant system regulating international relations, which replaced the Cold War after the fall of the Berlin Wall” (Friedman, 2001, p.25). This is seen, from the managerial standpoint, in how the newest generations approach work—for instance, the so-called Z generation (Homan, 2015; Horovitz, 2012) only tend to treat their professional life as the means to an end. They work to earn their living and do not seek fulfillment or self-esteem at work. Once this change becomes apparent to HR specialists, it will incur fundamental reconstructions of motivational systems in organizations.

The other approach conceptualizes globalization as rooted in one single change, i.e., the unrestricted ability to exchange information, goods, and resources, resulting in very strong co-dependent ties between all parties who participate in that exchange. Anthony Giddens reported that “globalization is, to an extent, the process of growing ties between states and nations” (Giddens, 2001, p.30). This process leads to results identifiable to every branch of social science. For management, they include the changes in work specificity (work from home, global task groups) and the growing economic connections between countries and companies. Specifically, it means that employees do not need to be geographically tied to their workplaces; it becomes increasingly more common to work in “dispersed groups” whose members live in different countries, on different continents sometimes. Earlier, global corporations emerged as a result of access to information exchanging technology. Nowadays, the global job market follows the same path as the same technology is easily available individually. The best, most proficient workers are therefore not restricted to their immediate environment and the companies who wish to hire them need to produce a new way of attracting talents.

2.2. Challenges of studying contemporary globalization: mechanisms, means of empirical research, and outcomes of changes

Theorists agree that contemporary globalization was, if not initiated, then at least made possible by the development of information technology (IT). It is an interdisciplinary branch of science, fusing informatics and telecommunication. Its main purpose is to optimize and rationalize the processes of obtaining, selecting, gathering, processing, using, and, finally, transmitting information from various sources and of various modalities (sound, picture, written word, and even smell or touch). This is obviously done with computers, and their rapid development in no small part contributes to IT and through it—globalization.

The observable disparities in access to information and communication technology are often termed “digital divide” (Rifkin, 2003) and are tied to both the economic condition of countries (the wealthier the country, the easier is the access to IT for its citizens) and to individual characteristics such as age and the level of education (Castells, 1998). Globalization does not encompass the world equally; it is more prominently seen in the parts of the world where access to technology is easier. Digital divide exists between continents, countries, people, and of course between companies. Access to the newest IT (and the ability of workers to actually use it) is a clear competitive advantage and most companies invest into it heavily.

Globalization influences every sphere of human functioning simultaneously; therefore, it cannot be studied or presented holistically, and the resulting picture would not be clear enough. As a result, there is a scarcity of publications attempting to treat globalization as one phenomenon. Instead, researchers narrow their perspectives and focus on one of several perspectives such as economic, political, ecological, global safety, demographical, anthropological, information, and cultural (Pietraś, 2002). The taxonomy is more conventional than strict, and the perspectives are often interrelated, but it nevertheless remains an accepted practice for a researcher to choose a field and focus on it.

Psychologists are most prominently interested in the cultural and information contexts of global changes, specifically in how they lead to information, ideas, knowledge, ways of thinking, convictions, and values permeate through geographical and mental barriers. Psychologists believe that the above list includes all the factors that are critical to the development and shaping of personality (Jarymowicz, 2008; Oleś, 2003). On the other hand, management specialists focus on the impact of those factors on job performance.

Globalization in the production and exchange of information is a highly complicated phenomenon, but its main component is often identified as the exponentially increasing ability to produce, store, transmit, and access practically unlimited amounts of information. The resulting abundance of data is accompanied by the inability (for various reasons) to select what is important and useful in a particular situation. This is termed “the availability paradox,” meaning that there is too much available information to make meaningful choices (Woods, Patterson, & Roth, 2002). This is also very clearly seen in experiments on decision-making, where managers are asked to choose an alternative based on a given amount of clues. It was proven in laboratorial conditions that once the amount of clues exceeds 9, the quality of the decision made based on those clues drops significantly. It goes without saying that in the natural environment, the amount of clues available to managers exceeds that critical number by several orders of magnitude, effectively hindering the efficiency of decisions. This makes studying the factors that help managers orient themselves in the glut of data a paramount concern for work psychologists.

Four basic directions of human approach to technology were identified by Herbert and Eric McLuhan (1992). They proposed a taxonomy of the results that the increasing presence of technology has for civilization, termed “the laws of media.” The beneficial results were termed as follows:
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