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## Guest Editors' Introduction

### Contemporary Research on Learning, Remembering, and Forgetting: The Scientific Legacy of P.I. Zinchenko Today

The end of 2008 is memorable to the authors of this introduction, for at least one important reason: the final two issues of the *Journal of Russian and East European Psychology* published that year presented a collection of Piotr I. Zinchenko's (1903–69) studies on the psychology of remembering and forgetting and a discussion of Zinchenko's contribution by several East European and North American authors, who entered into this discussion from quite different perspectives of historical and theoretical analysis of Zinchenko's research (Laktionov and Sereda, 1993/2008; Mescheryakov, 2008; Zinchenko, 2008), educational research on “incidental learning” and practice in second-language acquisition (McCafferty, 2008), “involuntary memory” (Mace, 2008), research on hypothetical “historical development of mental functions” (Yasnitsky et al., 2008), and cognitive psychology (Craik and Lockhart, 2008). For further discussion of the continuation of Zinchenko's tradition in Kharkov, Ukraine, in the 1960s to the 1990s, see the issue of this journal dedicated to the legacy of Grigorii Sereda (1925–95), Zinchenko's student, follower, and scientific heir (Yasnitsky and Ivanova, 2011).

This publication marked the beginning of the dialogue between the East and the West on certain issues of memory research, the latest developments

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of which we are witnessing now. Between then and now, a group of East European scholars from Russia and Ukraine gathered to present their research on memory and reflect on the interplay of their studies with Zinchenko's scientific tradition. A collection of contemporary studies made up a special issue of the Russian journal *Kul'turno-istoricheskaia psikhologiya* published in the spring of 2009. Notably, the issue followed the publication of the *Journal of Russian and East European Psychology*, and the authors were invited to reflect on the interrelations between their research and the Western studies. Thus, the dialogue was launched. This issue of the journal presents these East European studies, and Western readers are invited to judge the success of the dialogue.

For a number of reasons, cultural and linguistic, direct interrelations between Eastern and Western studies do not occur very often. However, certain commonalities and similarities can easily be identified. Generally, the Zinchenkian strands of memory research can be traced in three distinct areas: (1) educational psychology and the practice of "involuntary" or "incidental" learning, (2) involuntary memory in the post-Proustian tradition, and (3) cognitive science and, specifically, the theory of levels of processing.

Thus, the first area is represented by a pair of studies (McCafferty, 2008; Repkina, this issue) that attempt to shed light on the rules of seemingly "incidental," but, in fact, fairly predictable remembering what occurs while performing a meaningful non-mnemonic activity. Needless to say, unpacking the regularities of involuntary remembering seems to be of utmost importance for constructivist learning practice and the design of constructivist learning environments (Collins, 1996), which strongly emphasize knowledge acquisition as a function of activity rather than a product of rote learning, drill, and direct memorization. The article by Natal'ia Repkina is an important contribution to this line of research on "incidental learning." Repkina summarizes two decades of research on "incidental," or "involuntary," learning and demonstrates certain regularities of learning as a function of students' sense-making activity and reflexive practices in the classroom.

The topic of "involuntary memory" has recently been covered from two different perspectives. Autobiographic involuntary reminiscences discussed by Mace (2008) are interestingly mirrored in the clinical research of Russian-American scholar and grandson of P.I. Zinchenko, Alexander V. Zinchenko, who currently resides and practices in the United States. Unlike P.I. Zinchenko's student and follower Sereda, who emphasized an orientation toward the future as the mechanism underlying all human memory (Ivanova, 2011), Alexander Zinchenko's study of nostalgia among Russian immigrants in the United States shows memory as the painful involuntary recall of past events in the lives of people frustrated by the new—often perceived as strange, unfriendly, and even hostile—social environment.

The third area where the influence of Piotr Zinchenko's memory research is particularly noticeable is in the intersection between Soviet studies on meaningful actions typically conducted under the banner of research in the tradition of the so-called activity theory of Aleksei N. Leontiev and his associates and, on the other hand, Western cognitive science research. Vibrant experimental research on cognition that borrows from the two traditions seems to be among the most advanced fields of contemporary scientific psychology in Russia today. The interplay between the Soviet and Western traditions of experimental psychology is far from obvious and deserves a thorough investigation—both historical and theoretical. In this introduction, we sketch some ideas and pose questions for future discussion.

Ever since cognitive psychology moved on from the goal of designing computer models of cognition, where the functions of a cognitive subject can be completely transferred to a machine, it has shown growing interest in the specific characteristics of human cognition that distinguish it from computing processes *per se*. In this sense, its progress could be considered a convergence with cultural-historical tradition and the theory of activity, which proceed from the idea of the subject's activity and then focus on specific psychological and psychophysiological mechanisms underlying the manifestations of this activity and enabling it to occur.

The above trend is true not only of the cognitive psychology of memory, which initially did not pay enough attention to the aspects of human memory highlighted in the activity approach (cf. Roediger, Gallo, and Geraci, 2002), but also of research in other cognitive processes. For example, in the psychology of perception and perceptual attention, during the past few decades researchers have just as clearly shown interest in the activity of the cognitive subject and in the influence of the interpretation of a task and the role of individual strategies on the successful performance of tasks—in everything that naturally becomes a research focus when the research itself is based on activity theory (for a discussion, see, e.g., Falikman, 2010).

One way or another, with the emergence of this new trend, cognitive psychologists engaged in memory research would inevitably encounter at some point the area of research defined in Zinchenko's works (1961). The result was, on the one hand, the “reinvention of the wheel”—in other words, a rediscovery of phenomena described in Zinchenko's works long before the appearance of cognitive psychology—for example, the “generation effect” (Jacoby, 1978; Slamecka and Graf, 1978), and a number of effects that are called “levels-of-processing” effects in the modern experimental and clinical psychology of memory (Mescheryakov, 2008)—and on the other hand, a natural, albeit unfortunately belated, interest in his works, which began to appear in English translation (Yasnitsky, 2008a, 2008b).

It is now commonly accepted that the publication of an article by Craik and Lockhart (1972) announcing the levels-of-processing (LOP) approach to memory became a sort of revolution in the cognitive psychology of memory, with its dominant tradition of symbolic (component) models (e.g., Atkinson and Shiffrin, 1968). Yet this breakthrough was similar to what resulted from Zinchenko's works on involuntary remembering (see Laktionov and Sereda, 2008): Craik and Lockhart (1972) proposed treating long-term recall not as a function of repetition and structuring of information in short-term memory (i.e., *voluntary* efforts, or "controlled processes") but as a function of the level at which the information is processed to accomplish the task, which basically has nothing to do with remembering and recall (therefore, remembering is *involuntary*), the idea further extensively supported by experimental data (e.g., Craik and Tulving, 1975).

In other words, it was proposed for the first time in cognitive psychology that involuntary remembering be analyzed as a by-product of the cognitive subject's activity which is not directly related to remembering. But within Craik and Lockhart's framework, the concept of "the structural position of the material in activity" introduced in Zinchenko's works is replaced by the concept of "depth of information processing," which, in turn, with a certain amount of reinterpretation (for critical comments, see Velichkovsky, 1999), can be viewed as a cognitive mechanism of activity effects with its own neural correlates. In particular, the neural basis of the LOP approach to memory is the similarity of cerebral structures and systems involved both in information processing necessary to perform tasks addressed to various "levels" of processing and in memory processes (Nyberg, 2002).

It is fundamentally important that remembering and recall within the LOP approach have been considered a continuous process of information processing rather than search and activation of static "memory traces" (see Craik, 2002)—which in turn corresponds to the ideas of Zinchenko's disciple G.K. Sereda who considered memory a continuous process of experience formation that proceeds nonconsciously in the background while goal-directed cognitive acts are being performed, that is, as a "stream" that is never in an idle state (Sereda, 1975, 1975/2011, 1984, 1984/2011). It should be noted that the idea of the continuous nature of memory processes is extensively developing in contemporary psychology and cognitive neuroscience (cf. Toomela, 2010).

Finally, another important match between works in the context of the LOP theory and the works of P.I. Zinchenko and representatives of the activity approach is their tendency to investigate memory in connection with the personality of the cognitive subject. In particular, the "self-reference effect" (Rogers, Kuiper, and Kirker, 1977) described shortly after the appearance of the first theoretical and experimental studies by Craik and his colleagues

refers to the better recall of information relevant to the participant's personality. Incorporating this type of information into the experiment, researchers have demonstrated the increase in the efficiency of involuntary remembering of presented words even as compared words analyzed up to the semantic level. And although cognitive psychologists explain this effect through the degree of elaboration of the categorical system used (in particular, the system of concepts describing the specific individual is considered as such), this degree of elaboration, in turn, also requires explanation—possibly based on the concept of self-consciousness, which in the activity approach is viewed as awareness of oneself as an agent of activity and also has a level structure (Stolin, 1983).

In general, as Roediger, Gallo, and Geraci point out (2002), the method proposed by Craik and Lockhart has become very popular, the citation index of their 1972 work is extremely high, but the results obtained and accumulated since then still lack a satisfactory theoretical explanation. Of course, Craik and his colleagues failed to convert to their faith most cognitive psychologists of memory, and it is difficult to speak even of an established research tradition; their works nevertheless significantly influenced memory research and beyond it—for example, in studies of perception and perceptual attention (for a detailed discussion, see, e.g., Velichkovsky, 2002). Of course, cognitive psychologists are unlikely to consider the activity explanation of involuntary remembering proposed by Zinchenko and his followers as satisfactory, but such an explanation could probably emerge at the juncture of activity theory and LOP methodologies. Some contemporary attempts to incorporate the achievements of both cognitive and activity approaches with regard to memory are presented in this issue of the journal.

For example, Igor Utochkin, one of the leading Russian junior researchers in the field of visual attention and the director of the Cognitive Research Laboratory at the Higher School of Economics in Moscow, applies LOP methodology to the analysis of involuntary remembering given various attentional loads. However, in his analysis he widely implements both P.I. Zinchenko's conceptualization of attention and Bernstein's (1967) distinction between the leading and background levels of task accomplishment.

Veronika Nourkova of Moscow State University investigates the mechanisms of autobiographical memories of reports on terrorist attacks. As a proponent of the cultural-historical approach toward memory, she recognizes the importance of P.I. Zinchenko's works for the development of this research area and bases her own investigation on his ideas of activity and motivation as the most important factors in the regulation of human memory and incidental remembering in particular.

In an article by Maria Minakova (née Khirova), a graduate of Moscow

State University, remembering is experimentally studied in the context of students' learning activity. Besides P.I. Zinchenko's works and ideas, the author draws inspiration from the distinction of Endel Tulving (one of Craik's long-standing collaborators) between semantic and episodic memory subsystems, and demonstrates the relative role of cues addressed to these two subsystems in recall.

In contrast to the vast majority of scholars studying human memory, Valeriia Gershkovich, a researcher and lecturer from St. Petersburg University, chooses forgetting as her research target. She directly compares involuntary and voluntary forgetting (incidental and explicit omission). Her experiments could thus be considered the reverse side of P.I. Zinchenko's extensive research on involuntary and voluntary remembering. At the same time, she is much more interested in specific cognitive mechanisms of omissions rather than in trying to relate them to the structure of a subject's activity.

The studies presented in this issue of the *Journal of Russian and East European Psychology* are the best evidence of the promise of P.I. Zinchenko's legacy in contemporary international psychology studying the processes of learning, remembering, and forgetting. They also make an important contribution to the ongoing dialogue between post-Marxist Russian psychology and international scholarship. We can only hope that this input to the dialogue will be followed by future contributions from Western psychologists and will lead to a productive exchange and possibly even a synthesis of these two very different and, paradoxically, at times very similar research traditions.

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