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Mediated life activity, double stimulation, and the question of agency

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1. Introduction

Life activity is mediated by culturally informed sensory perceptions, engagement with artifacts and the built environment, and communication with conspecifics. Humans readily adapt to historically accumulated cultural practices while improvising anticipatory actions in the process ontology of the unfolding present. Many routine activities are regulated by auxiliary stimuli, such as the use of fingers for counting and measurement of time for organizing schedules. More elaborate examples include the following. A driver's rate of travel in a motor vehicle is mediated by the visual field, a speedometer on the dashboard, digital data displays on navigation units, traffic calming features such as speed humps, rumble strips, and traffic circles, admonishments for driving too quickly from a passenger ('slow down!'), and (in principle) by posted signage reflecting legal speed limits. In the commercial fishing industry, fishers make decisions as to where to set their gear based upon a wide array of instrumentation and displays (radar, sonar, depth sounders, digital chart and course plotters, fish finders, Loran navigation), communication with other fishers on both 'secret' and open radio channels, past log books documenting fishing productivity from prior years, national and international regulations and catch reports, and contingent dynamics such as weather, tides, and the presence of other vessels in the vicinity.

In the contemporary era, sporting activity, while rooted in bodily kinesthetic experience, is increasingly mediated and objectively re-presented to participants through fitness apps which provide GPS mapping of running and cycling (among other) activities and provide average rate of speed, elevation gained, total and moving time elapsed, and ranking of one's immediate performance against other users. These data are typically fed into social networks that allow users to comment, provide accolades (and also taunts), and to compare one's immediate performance with prior performances. Based on personal experience and reports from others, use of such fitness apps incites running or cycling faster (or attempts to do so), violating traffic signals in order to increase overall rate of speed, and adding distance at the end of a session in order to reach a round (but arbitrary) distance number (not 98.6 km, but 100 km!). Related phenomena include debt blogs, focused on publicly externalizing ones difficulties managing credit problems in order to regain self-regulation on spending, food tracking apps for better controlling diet, and participation in academic networks such as academia.edu and researchgate.net, which quantify downloads of academic articles, profile page views, number of 'followers', and

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other impact measures, all of which publicly visibilize countable aspects of academic production and subsequently may come to influence areas such as hiring decisions, competitiveness for external research funding, and the selection of publishing venues for scholarship. Of a sort, and in alignment with the idea of double stimulation, these aforementioned technologies serve the function of a second stimulus.

The above vignettes serve as examples of the ways in which complex networks of meditating artifacts enable, and transform, goal-oriented processes of cognition, sense-making, and agentive action. Adaptation and innovation amidst the complexity and emergence that constitute the human condition are extraordinary in our species (see Tomasello, 1999), but what gives rise to will and action? How is individual and distributed human agency constituted and what are its limits and potentials? These were central questions for Vygotsky (1987, 1994) that continue to be foundational to developmental and educational research (e.g., Karpov, 2005; Kozulin, 1998; Scribner & Cole, 1981) as well as to activist and formative intervention efforts informed by the cultural–historical tradition (e.g., Engeström, Sannino, & Virkunen, 2014; Ratner, 2006; Sannino, 2011; Stetsenko, 2010).

2. Double stimulation

The contributors to this special issue address human agency through a focus on Vygotsky's elaboration of double stimulation, with articles addressing experimental conditions (Sannino & Laitinen), educational reform (van Oers; Barma, Lacass, & Massé-Morneau), the challenge of sustaining innovation (Haapasaari & Kerosuo), and work place interventions (Engeström, Kajamaa, & Nummijoki). In non-technical terms, double stimulation refers to a 'first stimulus,' such as a task, a problem, a contradiction, or a conflict of motives, that is reframed or more readily negotiated through the use of a mediating artifact, which serves as the second stimulus. Second stimulus artifacts assist in a variety of ways, such as helping to organize behavior, to objectify and rend visible relevant information, to support remembering, and to enable a participant or a group to conceptually reinterpret a situation in a new and potentially expansive way. Importantly, the transformative efficacy of the second stimulus manifests as a function of its mutability and by the ways that users creatively construct and/or imbue the second stimulus with situation-relevant value and purpose.

The research and intervention implications of double-stimulation are many. Vygotsky (1978) and his colleagues used this methodology for studying the agentive qualities and sociocultural basis of higher order thinking and actions (for an in-depth review, see Sannino, submitted for publication). In Vygotsky's double stimulation experimental research, subjects were given a task as a first stimulus, such as the classic experiment of remembering a list of color terms (i.e., the Forbidden Colors Task). They were then provided with a second stimulus to help them navigate the task, in this case a set of colored cards that participants used to keep track of color terms they had already used as the task progressed. The second stimulus helped particularly older children to regulate their behavior and to successfully complete the task. Vygotsky and Luria (1994, p. 159) described the rationale for this innovative method as follows:

> We do not limit ourselves to the usual method of offering the subject simple stimuli … to which we can expect a direct response; we simultaneously offer a second series of stimuli which must play a functionally special role, serving as a means by which the subject can organize his own behavior. In this way, we study the *process of accomplishing a task by the aid of certain auxiliary means*, and … this way of bringing auxiliary means of behavior to the surface permits the tracing of the entire genesis of the most complex forms of higher psychological processes.

3. Double stimulation in experimental and educational contexts

In the article most closely tied to the Vygotsky and Luria quotation above, Sannino and Laitinen (this issue) explore double stimulation by reproducing one of Vygotsky's experimental conditions described as the 'meaningless situation' or the 'waiting experiment.' The authors document the compelling and somewhat fragmentary history of this experiment (initially conceived by Lewin) and outline the ways that Vygotsky utilized it as part of his project to radically reframe the discipline of psychology (see also Laitinen, 2012). In the authors' replication of the meaningless situation experiment, a subject is escorted into a room and told that the experiment would soon begin. The researcher then leaves the room and does not return. The subject is video recorded and if she or he remains in the room for the full duration, the experiment is terminated after 30 minutes has elapsed. If the participant left the room before this time, the experimenter would intercept them. Both those who stayed and those who left early participated in follow-up semi-structured interviews.

The premise of the meaningless situation is rather simple in that it involves the conflict between the motives of remaining in the testing setting due to obedience, following rules, behaving in expected ways, and feeling commitment to a contractual obligation, and leaving the setting when nothing, in fact, happens that follows the expected frame/script.

The power of the meaningless situation experiment is that this conflict of motives evokes complex behaviors and forms of decision making, which in turn shed light on the human condition in the areas of intentionality and agency. In addition to confirming the general validity of their innovative phase model for understanding will formation in the context of double stimulation, Sannino and Laitinen's analysis revealed two 'channels' of behavior in evidence during the waiting period. The first aligns with Vygotsky's findings and the expected protocol in experimental contexts. The second channel, however, illustrated the participants' agentive repurposing of the experimental context by bringing outside 'life activity' into the experimental condition. They also identified two patterns of leaving the experiment early: 1) breaking away in a determined fashion, and 2) compromised leaving in which some