IMAGES, IMAGINATION AND PSYCHOLOGY:
A LONG-LASTING LOVE STORY

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The present editorial describes the role played by several research fields within the psychological area and suggests reasons why psychological researchers could submit their work to the IMG journal. The contribution of the psychological perspective on the study of images processing and imagination is out of doubt. Subfields like perception and imagery have a straightforward relevance, given that they study how these cognitive processes manage and elaborate external and internal visual stimulation. In addition, other psychological subfields are thought to play an important role because of their tight connection with perception and imagery. Examples presented in this editorial are memory, language, psychology of thought, planning and cognitive ergonomics, although many other subfields could also show connections. In the final part, the relevance of the IMG journal for cognitive scientists is outlined. The propagation of results from the psychological point of view to design, architecture and education, and viceversa, could stimulate discussion and allow development of reliable ideas. Moreover, the creation of multidisciplinary research projects or groups could help to produce effective outcomes in the society.

When considering the contribution of the psychological fields to image processing, one suddenly thinks about perception and, to some extent, to imagery. Perception of objects, figures, faces, patterns, features (such as colors, distance, size) has been studied in the cognitive fields as one of the most prominent aspects, and cannot miss in every textbook about cognition. The connection between perception and images is obvious, as related to visual aspects of a stimulus: from the early phenomenological studies of the Gestalt, to the cognitive models by Marr (1980) and Biedermann (1987), the visual modality was the most investigated one. Nonetheless, recent studies have focused on other modalities, still relevant for the visual processing of an object: for example, "blind vision" (Cattaneo & Vecchi, 2011), supramodal processing areas (Ricciardi et al., 2011) and imagery (Ganis et al., 2000). While perception would require an object, imagery has been defined as a flow of thoughts involving senses to an extent that mimic the perception of a real object, but being still considered a product of the mind from the person. After periods of embargo from psychological investigation, its impact is now out of doubt: imagery is relevant for the elaboration of motor responses (Wolpert & Kawato, 1998), whose output is compared to the perceptual feedback and guides behavior. Moreover, it plays a key role in a wide range of psychiatric disorders including schizophrenia, anorexia, post-traumatic stress disorder, depression and obsessive-compulsive disorder (Pearson, et al., 2015). Likewise, some proposal for the treatments of clinical diseases (Holmes, et al., 2011) and for education of problematic children (Dowrick, 2012), mainly based on imagery, have been suggested. For these reasons, the IMG journal would expect a rich contribution from researchers in perception and imagery, which could improve and deepen the work in design and education.

Actually, both perception and imagery do not process stimuli as isolated modules, and require contribution of other mechanisms. Memory, in particular, is tightly connected to both. To the one hand, the visuo-spatial sketchpad of the

working memory maintains active and manipulates a set of conscious visual images (for a deep discussion see Pearson, 2001). Its role consists in providing people with the possibility to further explore visual and/or spatial information, without interfering with the verbal system. Accordingly, imagery and imagination (the difference between these processes is described in Vecchi, 2019) can be processed autonomously with respect to the verbal material: for example, after seeing a painting, one can retain its details even though she cannot find the words to describe these details. To the other hand, past experience is populated of visual memories. More or less vivid excerpts of life are able to activate related emotions: namely, episodic long-term memory. Prototypical images or schematic diagrams may be helpful when dealing with problems to be solved or when a quick answer should be given: that is, creating associations and retrieving information from the semantic memory. The mechanisms of memory have been studied extensively, and the amount of data about effects and effective strategies is a valuable resource, in my opinion, for those having the goal of creating a campaign that people would remember for many years.

The relationship between images/imagination and language and psychology of thought is generally considered to be less congruous with respect to the previous fields but, analyzing some peculiar aspects, it is still relevant indeed. In both processes, they work as facilitator. Imagination helps the creation of original discourses by combining structures into smart utterances. As related to the psychology of thought, when a schema is not suitable to achieve the solution, a problem solving process need to start and imagination could help to combine other heuristics or to ideate new strategies to fulfil the task (Treffinger, 1995). As regards to the role of imagery in these two processes, among several examples I would like to highlight its relationship with planning. Imagery plays a fundamental role for planning, because it allows foreseeing both the course of action to be executed and its consequences, and provides a sense of reality to the

plans. Therefore, imagery contributes to the creation of feasible predictions, fundamental both for language processing (Pickering & Garrod, 2013) and for problem-solving and decision making (Benoit, Gilbert & Burgess, 2011).

The last psychological field that I consider relevant mentioning is cognitive ergonomics. It investigates the relationship between human people and their work, by examining the interaction of cognitive processes with physical objects (Hartson, 2003). For example, it concerns controls and organization of displays (mapping); materials and their affordances; how colors, shapes and sounds may be properly used to increase efficiency of interfaces. Can one effortlessly identify what the icons of the buttons of a remote commander indicate? How could one evaluate whether children could use a didactical (video-)game and be enjoyed at the same time? Cognitive ergonomics (also known as human factors) merges the application of findings from the psychological studies with measurement and evaluation of human artifacts, originating a peculiar approach (Wilson, 2000). This aim is shared with the IMG journal, and this specialty evidently creates a bridge between psychology and the other disciplines collaborating to this editorial project.

The contribution of the areas described above to the discussion raised with IMG was an easy task to be fulfilled, because their impact is straightforward. The propagation of results from the psychological point of view to design, architecture and education could stimulate discussion and improve development of reliable ideas. Therefore, many readers of IMG would show interest in reading articles coming from the psychological perspective. Notwithstanding, why should a psychologist find interest in publishing a paper on IMG? From a raw perspective, if results will circulate in other fields, dissemination and citations of the papers would be improved. Thus, citation index would benefit and would count, in these times when these stressful indices are measured. More importantly, in my opinion, two other consequences are expected. On the one hand, psychological re-

search could borrow experience from other fields to develop original ideas on aspects that are not considered central, yet. This would guide psychological fields toward different interpretations of new and old data and, consequently, to the adjustment of theoretical models to include complementary perspectives. On the other hand, the creation of multidisciplinary research projects or groups, dealing with concrete tasks, could produce effective outcomes in the society. For these reasons, I warmly invite psychological scientists to submit their work to IMG, which is expected to become a reference point on the boundary between research disciplines.

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