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# REPORT ABOUT RESEARCH COLLABORATION

(Short-term mobility, period: November 2-15, 2010)
between
Professor Teresa L. DeCicco (Trent University, Canada)
and
the Signal and Images Laboratory of the Institute of Information Science and Technologies (ISTI), National Research Council, Pisa.

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*A cognitive model of the significance of the Storytelling Method*

The research collaboration with Teresa L. DeCicco during her visit at the I.S.T.I. has concerned the cognitive modeling of the "Storytelling Method" (DeCicco, 2007, DeCicco, 2009, DeCicco & Higgins, 2009, Clarke et al. 2010), a linguistic method for the interpretation of mentation reports.

Given a dream report provided by the dreamer, the Storytelling protocol allows the dreamer to easily and quickly provide an alternative narrative, which is closely connected to the dream, but at the same time is sufficiently different such that it leads to insight into the meaning of the dream. This method is interesting from both the linguistic and cognitive points of view; it consists of choosing a small number of significant words in the dream report, in the production of associated words, and at last, in the construction of a new narrative containing the associated words in the same order as that of the original words in the dream report. The Storytelling Method can be applied (DeCicco, 2009) as the first step in a series of four interpretation methods. The second of these stages, which is closely related to traditional methods of free association and amplification, turns out to be an extension of the Storytelling Method which pulls out the emotions from the dream. In other words, the alternative narrative provided by the Storytelling Method allows access to contents which are connected with waking day events of the dreamer in meaningful and profound ways (For examples, see: DeCicco et al, 2010, DeCicco et al, 2009).

Our research is an attempt to understand the reasons for the effectiveness of this method in light of a simple cognitive model of the psychophysiological system responsible for dream production. If the construction of a dream is described in terms of an input–output relationship, the dream-builder system could be viewed as a system whose input is given by the dream sources and whose output is given by the dream experience (Cavallero & Cicogna, 1993). The dream sources can be either memory sources or general assertions and, are generally connected to episodes of the dreamer's life which present concerns for the dreamer. Although the interpreter, who is also the dreamer himself in case of self-analysis, cannot directly access the actual dream experience, we can assume that the dream

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report provides a fairly trustable report of this experience. As a number of authors have underlined (See, e.g., Hartmann, 1995), a basic property of the dream builder system is that of making connections: the dream sources are closely interwoven, and graphs represent the sources as nodes and the arcs as links, can be semantically interpreted according to heuristic rules (Barcaro et al., 2005). From this point of view, the dream builder system can be described as a feedback system (Barcaro, 2010), because the output, (e.g. the dream experience) affects the input (e.g. the dream sources) either by creating links among dream sources or, if they already exist in the dreamer's mind, by changing their properties as a consequence of the dream experience. More generally, since the heuristic rules state that the links among dream sources insert present concerns into a positive, or less negative, context, the feedback property of dreams can positively affect the dreamer's mood, which is in agreement with Kramer's theory (Kramer, 1993). This kind of description of the dream builder system accounts for other basic properties of dreams, in particular the continuity between the life of the dreamer and his or her dreams (recently discussed in Hartmann, 2010), the role of dreams in turning-points of the dreamer's life (see Bulkeley & Siegel, 1998; Siegel, 2002), and the problem-solving capacity of a number of dreams, including historically famous creative dreams (see Barrett, 1993).

On the other hand, dreams also have a metaphorical content which somehow puts them at a distance from the personal experiences of the dreamer, a phenomenon which Freud described as dream distortion and Jung interpreted in terms or archetypes. Furthermore, the existence of typical dreams can hardly be explained only in terms of direct connections between the dream experience and the personal experiences of the dreamer's life.

In the light of this twofold property of dreams, we can very schematically represent the dream builder system as the cascade of two sub-systems; the output of the first being the input to the second. The first sub-system has the same input as the dream system described above (e.g. the dream sources). However, the output of this sub-system is no longer the dream experience, but something which is much more difficult to access. This output is coined the "virtual dream" and it can be viewed as the dream that would occur if the second sub-system would not exist. The first sub-system has the properties indicated for the above model; it is a feedback system establishing or modifying the links among the sources. It explains the continuity property, which is a general property of dreams, as well as the role of turning-point dreams and the problem-solving capacity of a number of dreams. The second sub-system processes the "virtual dream" provides the dream experience as output. The combination of these two sub-systems has the remarkable feedback property which can generally be attributed to dreams; the input, which is a sub-set of the dreamer's mind, affects the dreamer's mind itself, both by means of an assimilative process, which works even when the dream is completely forgotten, as most frequently happens,



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or by means of an accommodative process, as the consequence of a reflection on the part of the dreamer on a recollected dream (Piaget, 1962, Kramer, 1993). This psychophysiological model is based on the cascade of two sub-systems.
The interpretative stage of the model entails that processing the dream report by a variety of interpretative methods (for a detailed description and comparison of a number of methods see e.g. Delaney, 1993), the interpretation of a dream can provide information about its sources and about the significance of these sources in the mind of the dreamer, thus obtaining an interpretation of the dream.
The Storytelling Method can be credited with a twofold role. First, it is a facilitator of dream interpretation, because it helps identify the sources of a dream and its interpretation. In fact, traditional methods of dream analysis can be efficaciously applied considering the alternative narrative produced by the Storytelling Method instead of the original dream report. A further hypothesis concerning a significant property of the Storytelling Method can be advanced because this method can provide an access to the "virtual dream", a dream which, although having never existed as a real dream experience, can be conjectured as the output of one of the two sub-systems of the dream system. The "virtual dream" is more contiguous to the dream sources than the real dream. This property renders the Storytelling Method remarkably interesting from the cognitive perspective and highly useful in terms of dream interpretation for therapeutic purposes.

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