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## **Play Picture Making Music Emotional Enrichment (PME) as Wellness Improvement in Captive Non-Human Primates**

*M. Ferrero*<sup>a</sup>, *G. Quaranta*<sup>b</sup>, *M. Mauthe von Degerfeld*<sup>b</sup>, *D. Bergero*<sup>b</sup>, *F. Racioppi*<sup>b</sup>, *F. Luzi*<sup>c</sup>, *V. Redaelli*<sup>d</sup>

<sup>a</sup> ASL TO3, Collegno, <sup>b</sup> DSV, Grugliasco, <sup>c</sup> VESPA, Milan, and <sup>d</sup> DISTAL, Bologna, Italy  
E-Mail: mia @ alpimedia.it

The Play Picture Making Music Emotional Enrichment (PME) is an experimental enrichment proposed for great apes in captivity, through free painting activity, music (hearing music and playing drums), play and interspecies relationships as mediators. A simplified method (music, play and interspecies interaction) was also proposed in a *Macaca sylvanus* colony in Bernezzo, Italy. PME is based on the hypothesis that an individual's psychological and social welfare could be improved by having fun playing, free expressing oneself through creativity (that tends to integrate perception, thoughts and feelings), interacting with colours and art materials (multilevel stimulant). The artistic and relational mediators also stimulate self and group interaction (human or non-human primates). The method provides free access to materials, precludes any form of coercion and any reinforcement, except for a positive and respectful interaction human to non-human. PME has been used in Ngamba Island Chimpanzee Sanctuary – CSWCT (Uganda) on 11 subjects (5 ♀, 4 ♂, 2 ♀ babies), in 84 work sessions (43 in 2012 and 41 in 2013) of variable length (20–70 min), in the same work area. To evaluate emotional variations (EV) objectively, facial images (FI) of *Macaca sylvanus* were acquired by a thermo-camera before and during PME sessions. Surface temperature changes (emotional variation index) were codified as bi-dim matrix and elaborated by a devoted interactive software as imageJ (<http://imagej.nih.gov/ij/>). The PME participants generally proved to really appreciate the work, expressing interest in materials, involvement and enterprising spirit. They had different approaches to the materials, personal styles of painting and a reduction of anxious or compulsive behaviours during the work sessions. FI showed the EV especially on temperate climate days without any direct interaction with subject. Long registration times are needed to select meaningful images. The research reported complied with the European Directive 2010/63/EU and the International Primatological Society (IPS) Guidelines for the Use of Nonhuman Primates in Research.