

## Applying MacKinnon's 4Ps to foster creative thinking and creative behaviours in kindergarten children

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Researchers recommend that applying movement, music and play in preschool education, combined with teaching strategies and teachers' positive attitude, may foster the development of creative thinking in kindergarten students. The purpose of the present study was to identify certain strategies and conditions that should be used by teachers in kindergarten so as to foster creative thinking and creative behaviours to children. We used a quasi-experimental research design for 6 months in a public kindergarten in a suburban area of Greece, and we developed a creative music and movement programme. The programme was based on the 4Ps of MacKinnon model of creativity (press, product, process and personality). This model summarises a variety of approaches to creativity research and helps improve one's understanding of this multifaceted phenomenon. The four facets of creativity interact as an entire system and they cannot operate independently. As this spherical approach is in line with the holistic approach that we use in preschool education, we choose the 4Ps model of creativity as a platform for the whole study. Two groups of children participated in the

current study: the experimental and the control group. The experimental group was enrolled in a specific music and movement educational programme 2–3 times a week, while the control group participated in the unstructured free-play setting or in routine practices according to the official curriculum. To maintain internal validity, the experimental group shared common features with the control group. A total of 16 interventions were applied of 45–60 min each. The intervention was conducted by an external teacher, specialised in music and movement education, who was also the observer of the intervention. The interventions took place with full consent of the kindergarten director and the parents. Double evaluation was applied in both groups, before and after the intervention, and the results were compared based on MacKinnon's approach. In order to increase the reliability and validity of the current study, different and complementary tools (the Torrance's tests, the participant observation, and the semi-structured interviews with kindergarten teachers of both groups) were used so as to triangulate the results, to acquire a holistic interpretation and to confirm the validity of the processes. As was evident in the current study, a vital factor of an educational programme that fosters creativity is the concept behind the design and the appliance of the interventions. The basic consideration should not merely be 'what' practices are used to foster creative thinking in kindergarten children but additionally 'how', 'where' and 'by whom' they should be applied. Another important outcome of the current study consists of the effective appliance of the four perspectives on a programme meant for kindergarten students. Thus, it is proposed that such an educational programme should support this interrelation in order to promote creative thinking and creative behaviour.

