



## The Structural Playground, a New Environment Where to Enjoy Learning Structural Engineering

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### Abstract

In the last years we have seen how the traditional teacher-centered model of education is being replaced by a learner-centered model where both the student and the instructor share prominence. This shift has required the implementation of new teaching methodologies but, very often, has not been accompanied by changes in the physical space where the learning process takes place. In this paper, the authors introduce an experimental classroom designed to teach several structural engineering courses at Princeton University. The classroom is named “The Structural Playground” because it was conceived as a nice and playful environment inspired by the playgrounds and classrooms of nurseries schools and kindergartens. The paper describes the “Structural Playground” and summarizes the main lessons learned with it.

**Keywords:** education, active learning, inspiration, kindergarten, playground.

### 1 Introduction

In the last years we have seen a change in the model of education: the traditional teacher-centered model that focuses on the instructor is being replaced by a learner-centered model where both the student and the instructor share prominence. This shift requires adopting teaching methodologies such as the project based learning or the peer instruction that let the students do more tasks and promote self-learning (see [1-3] for some examples). Very often this change of educational philosophy has not been accompanied by changes in the physical space where the learning process takes place (see Fig. 1).

However, research shows that the physical space

also influences the way we learn [4]. Therefore, the new model of education also calls for a rethinking of the learning spaces. At Princeton University, an ad-hoc committee examined the effectiveness of classroom designs for modern ways of teaching [5].



*Figure 1. Students working in groups in a typical college classroom.*