

Introducing Beginners to Making: Spaces, Methods, and Hands-on Approaches

Workshop for Building Pathways to Creativity and Innovation in Education

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Tools, Skills and Materials: Materials -> MakeDo, Materials -> Cardboard, Materials -> Craft Material

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Abstract

Despite the increasing relevance of constructionist learning approaches, many educators struggle with how to introduce students to Making in a structured, accessible, and scalable way – especially when resources, space, or institutional support are limited. This workshop addresses that challenge by presenting three practical models for integrating Making into formal education: (1) a dedicated school-based Makerspace, (2) a mobile Makerspace with tools on wheels, and (3) an extracurricular Makerspace. Each model is illustrated with examples from practice and designed to accommodate different school contexts and infrastructure constraints.

Drawing on Papert's constructionism (Papert & Harel, 1991) and expanded through the MakeComp4School framework (Maurer, 2023), the workshop introduces two didactic entry strategies: the „Maker License“ system, which scaffolds skill acquisition before students begin independent projects, and situational making, which invites learners to address real-world needs through self-directed prototyping. Both models promote creativity, agency, and interdisciplinary thinking (Marshall & Harron, 2018) while maintaining a low-threshold entry into hands-on making.

Participants will engage in rapid prototyping tasks using accessible materials (e.g., cardboard, basic electronics, microcontrollers) and receive implementation resources such as planning templates and evaluation tools. This workshop contributes to the field of constructionist learning by providing educators with pedagogically grounded, adaptable methods to foster meaningful making experiences for beginners.



Workshop Description: Scope, Motivation, and Background

Introducing students to Making requires more than access to tools – it demands inclusive spaces, structured entry points, and pedagogically grounded strategies rooted in constructionist learning. This workshop explores three accessible models for implementing Making in school contexts: (1) a dedicated school-based Makerspace, (2) a mobile Makerspace on wheels, and (3) an extracurricular Makerspace. Each model addresses practical challenges and supports scalable, beginner-friendly approaches.

Grounded in Papert's constructionism and frameworks like MakeComp4School (Maurer, 2023), the workshop presents two structured strategies for initiating Making: the "Maker License" system, which ensures that students acquire essential skills prior to engaging in independent projects, and an alternative model where students solve situational making tasks derived from authentic needs, fostering problem solving, ownership, and engagement.

Participants will work with low-threshold prototyping materials (e.g., cardboard, motors, microcontrollers) and receive adaptable planning templates. These tools were selected for their accessibility and flexibility, allowing educators to translate constructionist principles into diverse teaching contexts. The workshop contributes to advancing constructionist practice by empowering teachers to implement Making meaningfully – even in resource-limited settings.

References

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