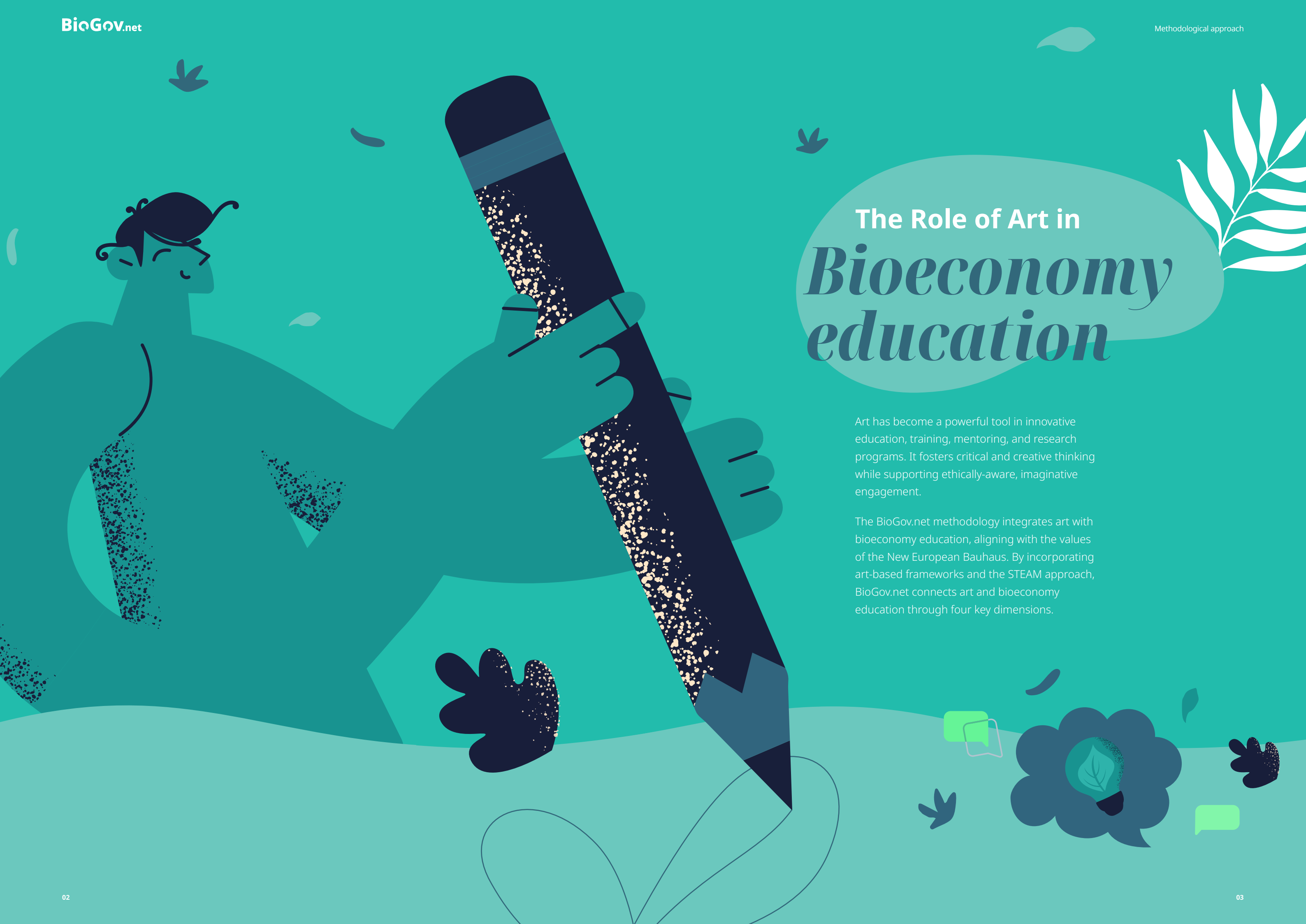


The Role of Art in *Bioeconomy education*



A stylized illustration of a person with dark skin and curly hair, wearing a dark shirt, holding a large pencil. The pencil is dark blue with a yellow band near the eraser and a yellow eraser at the top. The pencil is filled with small yellow dots. The person is holding the pencil diagonally across the frame. The background is a light blue gradient with various abstract shapes and colors, including a large yellow circle, a green leaf, and a blue flower. The overall style is modern and artistic.

The Role of Art in *Bioeconomy* education

Art has become a powerful tool in innovative education, training, mentoring, and research programs. It fosters critical and creative thinking while supporting ethically-aware, imaginative engagement.

The BioGov.net methodology integrates art with bioeconomy education, aligning with the values of the New European Bauhaus. By incorporating art-based frameworks and the STEAM approach, BioGov.net connects art and bioeconomy education through four key dimensions.

1st dimension

Art to elicit new ways of thinking and develop skills

Objective

To define educational programmes which:

- Stimulate systemic vision/thinking
- Cultivate circular and sustainable mindset
- Promote structural change (biotransition)
- Foster transversal competences and skills
- Encourage divergent thinking

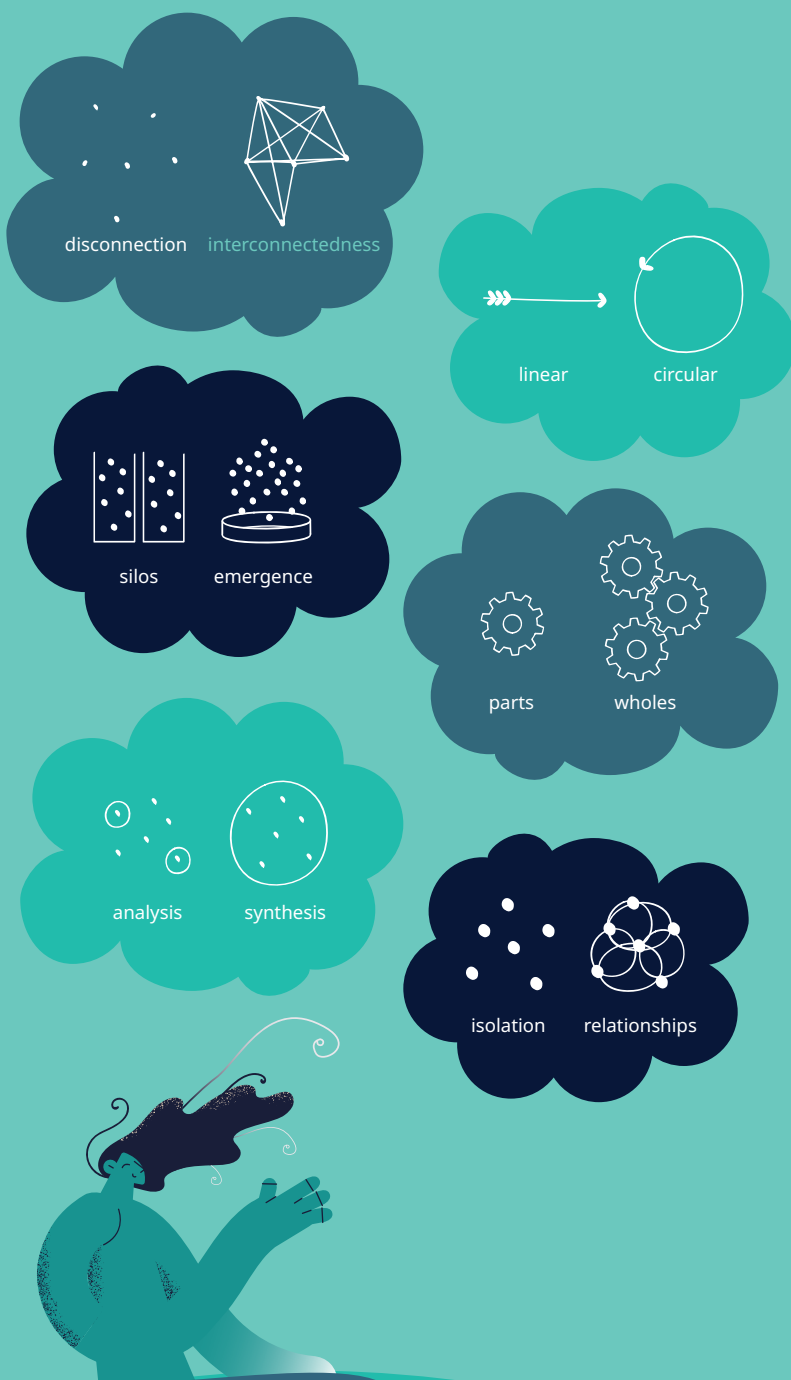
What is systemic thinking?

Systemic thinking is a way of understanding how different parts of a system interact and influence each other. Instead of focusing on individual elements, it looks at the bigger picture, identifying patterns, relationships, and feedback loops to solve problems holistically.

In the bioeconomy, this means recognizing how biological resources, sustainable production, circular economy principles, and societal needs are interconnected. By applying systemic thinking, we can design solutions that promote sustainability, resource efficiency, and long-term resilience in bio-based industries.

What is visual thinking?

Visual thinking uses images and diagrams to simplify complex ideas. In the bioeconomy, it helps illustrate circular processes, sustainable value chains, and resource flows, making concepts more accessible and engaging.



S. Albertini, S. Marinelli, 2023

2nd dimension

Art to address different learning styles and facilitate inclusion of marginalized groups

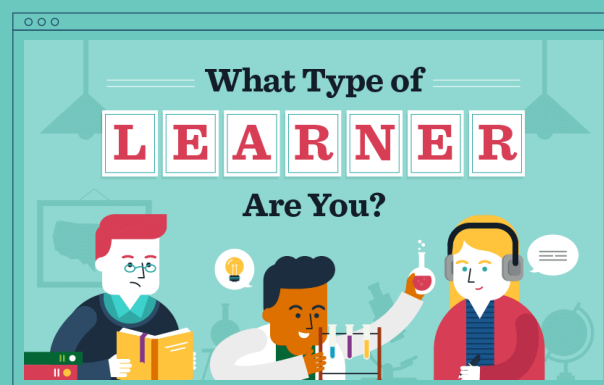


Using methodologies and artistic communication in bioeconomy education.

Objective

To define educational programmes which facilitates:

- Use of arts in various ways to better address different learning styles people have/prefer
- Engage marginalized groups through artistic expression



"You Learn One of These 5 Ways" in inc.com based on the VARK model (Neil Fleming)

Different learning styles

The VARK model (Neil Fleming) suggests that everybody receives and processes the information differently (visual, auditory, written, kinesthetic and multimodal - more information in this [article](#)).

- **Visual:** Diagrams, illustrations, and videos
- **Auditory:** Podcasts, storytelling, and music
- **Reading/Writing:** Articles, essays, and instructions
- **Kinesthetic:** Hands-on experiments, interactive projects
- **Multimodal:** A combination of the above methods



Reach marginalized people

Examples:

- Supporting learners with difficulties (e.g. Dyslexia, Dysgraphia, Dyscalculia, Visual Perceptual/Visual Motor Deficit, Attention Deficit Hyperactivity Disorder (ADHD) Language Processing Disorder, Nonverbal Learning Disabilities)
- Engaging non-native speakers and migrant communities
- Motivating hard-to-reach groups (e.g., NEETs, unemployed individuals)

Case study

Bioplastics Chefs: Super recipes for a future Taranto

Context: SOUx – School of Architecture for Kids in Taranto (old town)

Target: Children (7-12 years old) from disadvantaged backgrounds

Format: 2-hour workshop featuring:

- Sensory laboratory (observing, touching, and feeling biomaterials)
- Co-creation of storytelling
- Hands-on bioplastic experimentation



Triggering questions

Do you know what waste is? Do you think it could be reused? What are today's cities made of? What if we used waste to make biomaterials for the cities of tomorrow? Which part of your city would you like to change? What sensations would you like to feel?

3rd dimension

Art to communicate messages, inspire people and raise their interest and awareness

Using inspirational case studies and artistic formats to educate in the bioeconomy.

Objective

- To integrate the opportunities created by the human-centric principles, offered by art, culture and (eco)-design, in respect to the bio-based feedstocks, including traditional and novel biological materials
- Leverage the Nespresso marketing model to link beauty and good (Art and Bioeconomy)

Key Concept

Linking Beauty and Sustainability: Applying principles from marketing models like Nespresso—where aesthetics and sustainability coexist—to the bioeconomy sector.

The BioArt Gallery



4th dimension

Inject the bioeconomy into Cultural and Creative Industries professionals

To inspire and educate students and professionals in artistic careers on:

- The use of sustainable biomaterials in art, architecture, and design
- Responsible production practices in the cultural and creative industries
- New entrepreneurial opportunities in bioeconomy-related fields

Do it yourself biomaterials

- Raise awareness on more sustainable materials for architecture and design and a more responsible production
- Stimulate new perspectives on work and entrepreneurial opportunities



Various biomaterials samples by Selenia Marinelli



BIQ House (Splitterwerk, 2013)
© Colt International, Arup Deutschland, SSC GmbH



Hy-Fi Tower (The Living, 2014)

Notable examples

- **Hy-Fi Tower (The Living, 2014):** A biodegradable structure made of mycelium bricks
- **BIQ House (Splitterwerk, 2013):** A bio-responsive building using microalgae to generate energy

Conclusion

By merging art with bioeconomy education, BioGov.net fosters creative, inclusive, and impactful learning experiences. These four dimensions not only enrich traditional education but also inspire systemic change, drive sustainability, and shape the future of bio-based industries.



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✉ info@biogov.net

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