

Science for Sustainable Societies

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Imagining, Designing and Teaching Regenerative Futures: Art-Science Approaches and Inspirations From Around the World



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Science for Sustainable Societies

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Julia Bentz • Jelena Ristić Trajković
Editors

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Chapter 40

The Permaculture Approach



Censu Caruana

40.1 Introduction

Permaculture can be considered synonymous with regeneration. In a world where so much damage has been done to the ecosystem that conservation and preservation are not enough, regeneration and restoration need to take the central stage.

Permaculture is a “set of principles that integrates land, resources, people, and the environment through mutually beneficial synergies. It aims to imitate and recreate natural ecosystems through the use of closed-loop and no-waste techniques” (PermaModule, n.d.). Unlike intensive agriculture, which often sacrifices biodiversity for high productivity, permaculture offers holistic alternatives rooted in ethics, specifically earth care, people care, and fair shares.

My teaching approach in permaculture is rooted in fostering observation, problem-solving, and critical thinking. I believe that true understanding comes from active engagement with the context. Therefore, I encourage my students to deeply observe natural systems, question existing practices, and collaboratively devise innovative solutions. This approach transforms students from passive recipients of knowledge to active participants in their learning journey. In a project setup, while foundational knowledge of permaculture principles is essential, I emphasize that much of the learning will occur organically through hands-on experience and exploration. Motivation and curiosity are the driving forces behind successful learning, far outweighing initial expertise. Students are encouraged to start with basic knowledge but are supported to dive deeper into the complexities of permaculture through continuous learning and adaptation. This methodology not only imparts technical

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skills but also nurtures the potential for regenerative practices and transformative change. By integrating permaculture ethics and principles, students learn to envision and create sustainable systems, fostering ecological and social regeneration.

40.2 Transformative Potential

The power of permaculture lies in its potential to promote sustainable and regenerative futures. It fosters biodiversity, enhances soil health, conserves water, and reduces waste. Beyond environmental factors, there is enormous potential for the social sphere. In practice, it often unites people together through collaborative projects such as community gardens, urban gardens, and cooperative farms. It supports social equity by promoting inclusivity and access to fresh, clean, healthy, and fair food for community members while fostering self-reliance by providing the knowledge and skills to produce one's food sustainably.

The teaching of permaculture involves active learning, requiring students to engage through discussions, observations, group work, problem-solving tasks, case studies, and fieldwork. Learning design in permaculture necessitates taking responsibility for one's learning while recognizing the teacher's guidance in the process. In a world where many young people are suffering from nature disconnectedness, permaculture nurtures personal growth and well-being by re-connecting individuals to nature.

To successfully apply permaculture, it is important to consider time, commitment, and available resources. It can be applied both individually and in groups, but the community aspects can help enhance social cohesion, resilience, and friendship.

The transformative potential of permaculture also lies in its offering agribusinesses sustainable practices that improve the soil, reduce operational costs, and improve long-term yields, thus fostering profitability while minimizing environmental impact. It also opens up new opportunities for diversified product lines and niche markets, successfully aligning economic success with environmental sustainability.

40.3 Application

To apply the permaculture approach, one needs to start by understanding its core principles and design methods. Here, I illustrate its application through a project I conducted at the University of Malta.

40.3.1 Project Setup

At the University of Malta, I utilized a Virtual Learning Platform to deliver the permaculture curriculum. Each lesson, or volume, was released every week or 2 weeks. The platform included open forums for students to share their learning experiences and discuss tasks with each other. A piece of land on the university campus was designated as a simulation site for students to apply permaculture design principles.

The content of the permaculture curriculum can vary according to whether one is introducing the principles or whether one is doing a full immersion over several days. Typically, it encompasses an exploration of principles and practices designed to promote sustainable living and environmental stewardship. It focuses on the ethics and foundational principles behind permaculture, guiding students on the ethical considerations of earth care, people care, and fair shares. Being fundamentally about design, methods of design form a core part of such a curriculum, teaching students how to apply these principles in designing sustainable systems, often using a real piece of land as a simulation.

Due to the challenge of climate change, and one potential response to the challenge being sustainable ecosystem management, a permaculture curriculum typically tackles basic content on soil health, water management, and biogeographical regions. These are often developed through equipping students with a basic understanding of the scientific principles and natural laws that underpin the understanding of permaculture. Finally, pattern understanding illuminates the interconnectedness of natural systems, helping students gain competencies in system thinking, and empowering them to recognize and replicate beneficial patterns, thus also developing their anticipatory competencies in co-creating a new world they are able to imagine.

40.3.2 Assignments

For their assessed assignments, students are required to keep a reflective journal (30%) and produce a design for the identified piece of land (70%).

For the reflective diary, I ask my students to make an entry after every lesson and visit the piece of land. Students are encouraged to:

- Use the reflective diary to measure their own learning against the learning outcomes of the course, as well as to see and monitor their own development and how their ideas change with time. Through this reflective diary, they are able to capture their own personal development and growth.
- The reflective diary allows not only for a description of their learning but also for a critical reflection on their own learning. It provides a space for students to ask questions, express their doubts, and write about their hopes. It allows them to develop their own identity as change-makers.

- Students are encouraged to go beyond text and use any other medium they feel comfortable in, such as writing poetry, sketching, painting, and including photographs.

The final design assignment involves identifying the essential characteristics of the simulation site and applying permaculture design methods to create a sustainable system. If students or their families own a piece of land, they can submit a design for their own property instead of the simulation site. One notable example was a student from an educational background who designed a permaculture garden for the school where she taught.

40.3.3 Practical Implementation

Students are encouraged to visit the simulation site frequently to observe and take notes on its characteristics and microclimate. Typical questions posed through the Virtual Learning Platform include the following:

- What is the relevance of permaculture to today's environmental, social, and economic challenges?
- What is the potential of the application of permaculture ethics and principles to radical ecological and social transformation?
- Choose one of the Regenerative Agriculture and Permaculture Core Principles and Tenets that you consider particularly useful to the simulation field you have seen during the field visits. Why did you choose this principle? How can you apply it to the field in question?

40.3.4 Considerations for Implementation

Permaculture is about progress rather than perfection. The context and resources available determine the possibilities, but the most crucial step is to start. Safety is paramount, so it is essential to wear suitable outdoor clothing, gloves, and safety shoes and to closely follow protocols when using power tools. When resources allow, conducting a thorough site assessment, including soil analysis, climate study, and mapping of existing resources and features, is highly beneficial (Table 40.1).

Table 40.1 Method overview

| |
|---|
| Main purpose |
| Enhance agency in growing one's own food Design according to the basic principles of care for the planet, care for people and fair shares |
| Gained competences |
| Critical thinking, biomimicry, ethical consumerism, and living within the carrying capacity of the earth |
| Educational setting |
| Nonformal and informal |
| Space requirements/restrictions |
| Ideally an allotment or piece of land suitable for growing food |
| Resources and necessary materials |
| Gloves, garden tools, notebook |
| Number of participants |
| 3–12 people |
| Facilitator competences and skills |
| Knowledge of permaculture design principles |
| Participants skills/age/competences |
| Anyone interested in agroecology and in growing one's own food Agri-business students Age 18+ years Subject to the necessary consent and safety procedures, can be adapted to younger persons as well. |
| Duration |
| Introductory course 1 day Various combination Fuller courses 3 days+ Ideally, time is blocked for fieldwork and practical design |

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