“School gardens – a setting for promoting sustainability competencies and values”

Pernille M. Dyg, Post Doctoral Fellow,
Associate Lecturer, Metropolitan University College
Copenhagen, Denmark
Structure and main points:

- Background, research methods and questions
- What children learn in the gardens are linked to sustainability competencies
- Broader sustainability competencies
- Conclusion and implications
Gardens for Bellies school garden program

Aim:
to promote children’s learning about and connectedness to nature and ecology, food growing and cooking tasty, home-grown, climate friendly and wild plant-based meals.

= Fundamental competencies needed in the future generation to promote sustainability values, sustainable diets and lifestyles.
### Research methods

#### Explorative case study approach:
- Qualitative methods
- Literature reviews: 1. Identity + social competencies. 2. Learning
- Survey of parents

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Photo: Dyg, P. Haver til Mave, Gribskov, Denmark
Research questions

1. What knowledge, skills and competencies do schoolchildren develop in the Gardens for Bellies school garden program in Denmark?
2. How is it linked to sustainability competencies?

Foto: Dyg, P.M. Haver til Maver, Tommerup
Gardens for Bellies – Sustainability competence themes

1. Nature connectedness and ecological and agricultural literacy
2. Action competence: food growing and cooking skills and sustainable diets
3. Empathy, ownership and social skills.
An organic school garden introduces children to a local sustainable food system that can provide pupils with skills that perhaps inspires them, in their future lives to grow some of the vegetables they eat. By cultivating their own produce and cooking from scratch, we know where the food comes from and what it contains. It also gives children a unique opportunity to understand how they as individuals are part of nature, and how they in sympathy with nature can get produce from their own garden.

Interview with 5th grade teacher

"Well, you've made it all yourself from scratch. Well not the seeds. Usually you just buy food from FAKTA, and then you eat it. But to make THIS food, it has taken several MONTHS actually just to grow it."

Focus group interview, 5th grade pupils

Photo: Jensen, K. Gardens for Bellies, Natursamarbejdet, Aarhus, Denmark
1. Nature connectedness and ecological and agricultural literacy

- Understanding of ecology, food production and food systems: learning about the growing process, pollination, decomposition and composting;
- Ecological and Agricultural literacy:
  - hands-on skills and interest in food growing, an understanding of soil (soil composition, fertilization and other factors), basic concepts related to plant physiology, morphology and ecology.

Photo: Jensen, K. Gardens for Bellies, Natursamarbejdet, Aarhus, Denmark
2. Action competence: Food growing, cooking skills and sustainable diets

Boy 1: "Keep having these school gardens. It’s great fun."
Girl 1: "I would like to extend them a bit so that they become larger, and grow some other plants that we don’t know."
Interviewer: "What’s so exciting about plants, you don’t know?"
Boy 2: "It's that we don’t know how they taste, and so we taste something new. And it's fun to plant because you don’t know how to do it."

Focus group interview with 6th grade pupils

"They were good out there in terms of taking on challenges. They have been eating mealworms and earthworms out there. ‘Who dares to chew it and who will swallow it?’ Now we sit back in the classroom and learn about developing countries, where they eat caterpillars and grasshoppers. It's not very distant for them now, because they have just eaten mealworms and earthworm. They can easily relate to that."

Interview with 4th grade teacher
2. Action competence: food growing, cooking skills and sustainable diets

1. Growing, cooking and eating sustainable meals:
   - Homegrown vegetables (incl. underutilized varieties)
   - Wild plants
   - Interest in, knowledge about food growing and agricultural biodiversity.

2. Food production for Food Ed. Class and school canteen

3. Composting
3. Empathy, ownership and social skills

- Develop their social skills and connections
- Learn to treat others (peers and other lifeforms) with empathy, compassion and support
- Improve their self-understanding including gaining important successful experiences in regards to their own abilities
- Find joy in learning

Boy 1: "You were SO insane. You just did like this [makes a move] and got the weeds!"
Boy 2: "Yes, I did aaaaaaaaaaarh [doing movements with his arms and body]."
Interviewer: "You were really effective?"
Boy 1: "Yes, he just did like this, aaaaaaaaaarh [laughs]."
Focus group interview with 4th grade pupils
Sustainability competencies

1. Ability to think and work interdisciplinarily, holistically and with problem-solving
2. Ability to look at issues from different perspectives and have **empathy for others**
3. Capacity to obtain new knowledge, recognize uncertainty
4. **Ability to see connections - Systems thinking**
5. **Capacity to act** and work innovatively and creatively with visions, solutions and future perspectives.

(In Dyg, 2014; Breiting, Schnack 2009)
Implications - conclusion

- Children gain basic sustainability competencies through garden-based learning and cooking.
- Skills related memories are harder to forget. However, have to be ‘reactivated’ in order for them not to be lost. (Illeris, 1999)
- Most educators are not expanding this to broader sustainability issues and future solutions to sustainable food systems.
- A broader view of food production, nature and the world and the ability to see connections and ‘the big picture’ needs to be unfolded in the classroom.
Thank you for listening

Questions?
References

- DYG, P.M. 2014. Fostering Food Literacy and Food Citizenship through Farm-School Cooperation and beyond: Theoretical Perspectives and Case Studies on Farm-School Cooperation and Food and Agriculture Education. Ph.D. dissertation, Department of Planning and Development. Aalborg University.