Food Literacy – The key to a healthy diet and well-being among children and young people?

2021

Food Literacy Refers to the complete set of knowledge, skills and behaviours required by individuals to meet their everyday food-related needs within a specific context (Vidgen & Galegos, 2014), and is used interchangeably with the terms *food literacy* and *food competence* (Benn, 2014).

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PURPOSE

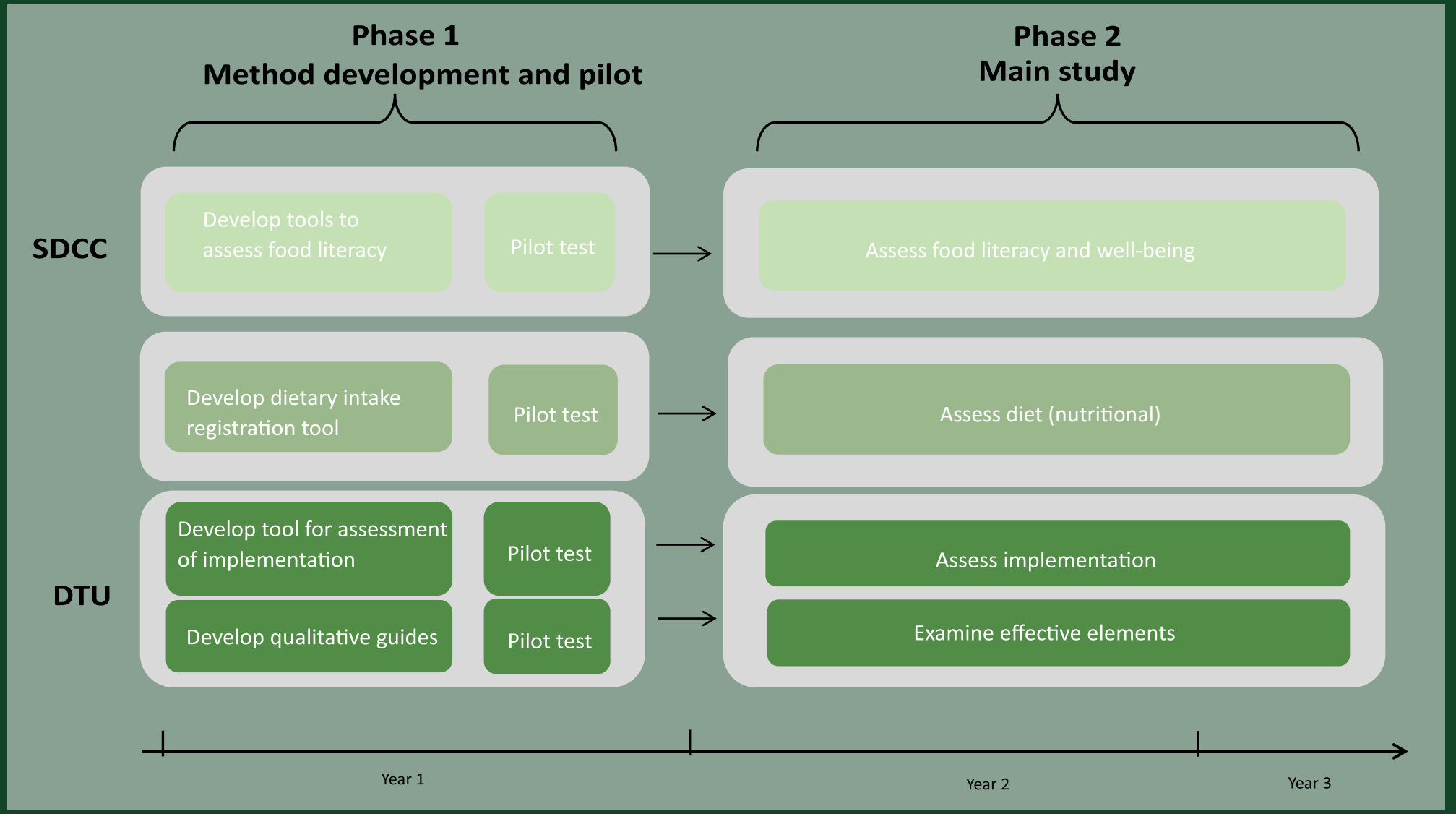
Although there is a considerable focus on improving food literacy among children and young people, we do not have the necessary insight into how food literacy develops and how it can be assessed in this demographic. By developing new tools to assess and evaluate children and young people's food literacy, and by applying these in a research-based evaluation of Madlejr®'s – Food Camp methods, we will gain insights that can be applied to the food literacy of future generations in Denmark.

The research project must:

1. *Develop and validate research-based tools* to assess and evaluate children and young people's food literacy and dietary intake
   - Develop the basis for evaluating food literacy
   - Develop an app-based photo-log to register the diet of children and young people

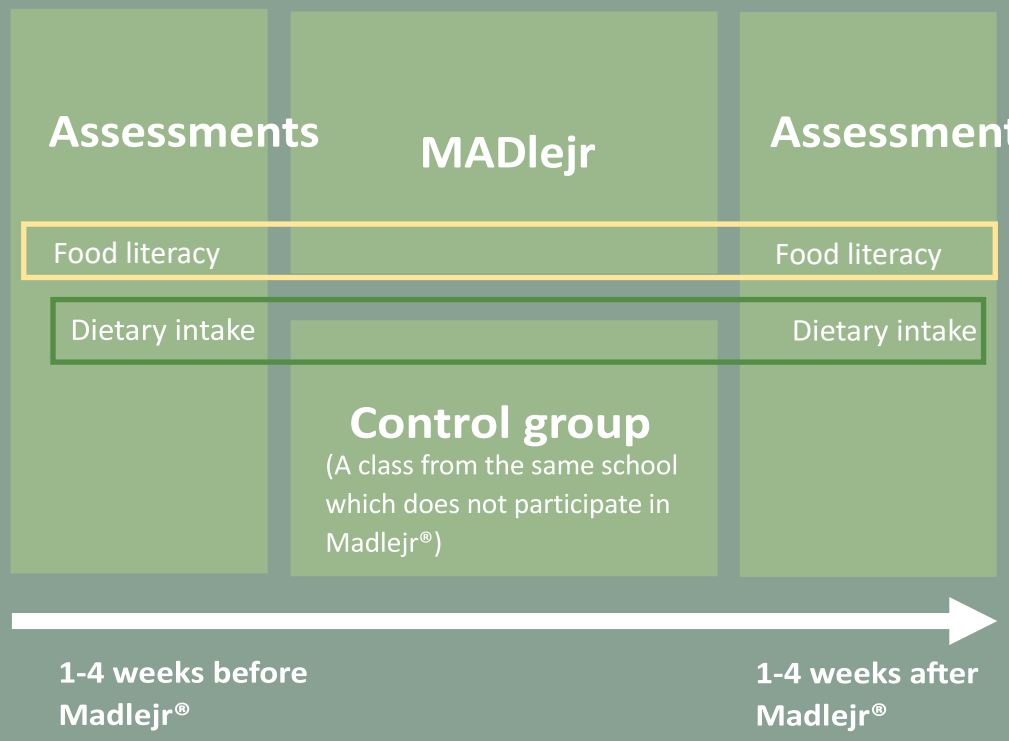
2. *Apply the developed tools* on the students at Madlejr® and on a control group to:
   - Evaluate the effect of participating in Madlejr® on children and young people's food literacy.
   - Map out potential didactic/pedagogic principles that positively impact development of food literacy at Madlejr®.

THE PROJECT'S TWO PHASES

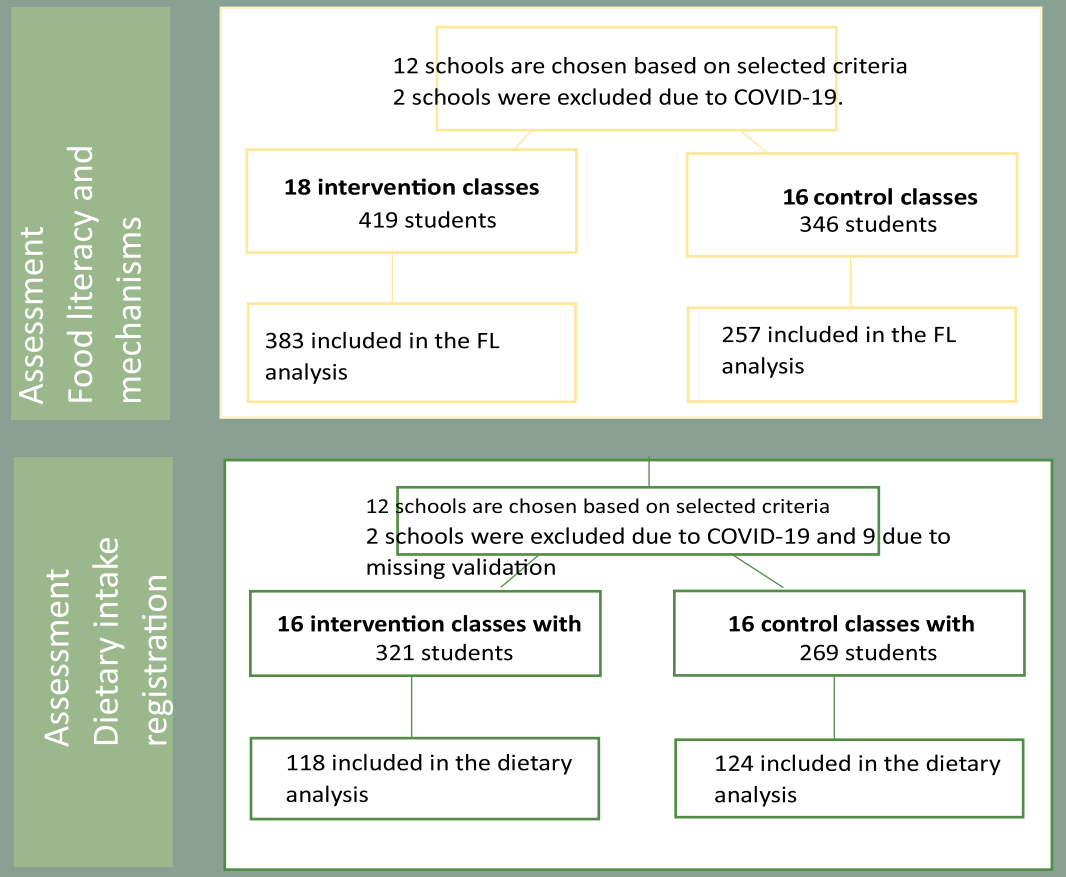


DATA COLLECTION (PHASE 2)

Collection - process



Collection - participants



THE ANALYTICAL FRAMEWORK

As the analytical framework for this project, the researchers have chosen to apply Jette Benn's (2014) definition of food competencies, since Benn specifically examines food competencies in relation to children. Benn also applies a broad definition that includes more than just nutritional knowledge and cooking skills.

Benn emphasises that these competencies do not need to be present in the same process but that they should be incorporated over time in order to promote a comprehensive formation of food-related knowledge, skills, and understanding (Benn, 2015).

Competencies	Purpose
To know	To understand connections, f.ex. between food and health
To do	Practical and technical everday competencies.
To sense	Competencies that engage the senses
To care (To want)	Ethical considerations that reflect care taken
To want (To be/become)	Responsible citizenship. To be willing to act.

DEVELOPMENT OF TOOLS – THE RESULTS

1

Questionnaire for the quantitative assessment of food literacy development

The questionnaire has been developed, validated and applied. The tool is innovative because it incorporates the competencies “to sense”, “to care” and “to want”, which have not been explored previously.
The tool is considered applicable for a wide range of food-related activities, and not exclusively for Madlejr®. Parts of the questionnaire-based methodology are currently being used by DTU in an ongoing research project.

2

Observation- and interview guides have been developed for the qualitative evaluation of the mechanisms of change supporting food-related activities for children and young people

The interview framework was in part developed on the basis of Madlejr®. As a result, some adaptation will be required before it can be applied more broadly to the evaluation of food-related activities for children, including those implemented in schools and childcare settings. It also has the potential to be adapted for use for other age groups in contexts where food and health activities or targeted initiatives are needed.

3

Innovative dietary registration for children and young people - the photo app

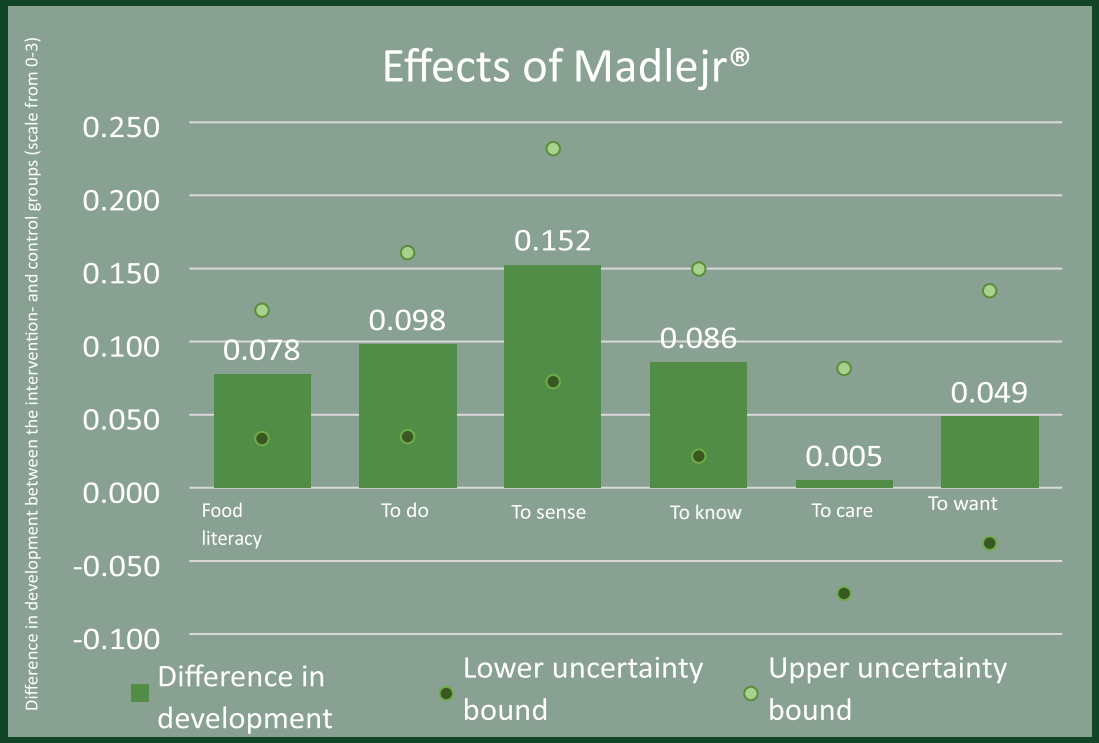
The first version of a smartphone app for dietary registration has been developed. Dietary intake registration is challenging, even for adults, and this approach—which focuses on simple, objective registrations in real time before having a meal —has considerable potential.
Similarly, with further development based on this initial version, the tool could make dietary registration among the elderly and socially vulnerable populations less resource-intensive.

DEVELOPMENT OF FOOD LITERACY - RESULTS

Results:

1. The students who participated in Madlejr® develop their food literacy more than students from the control group.
2. Especially the competencies **to do, to know** and **to sense** demonstrate the biggest growth in the students' food literacy.

3. **To sense**, in particular, demonstrates a significant development during Madlejr®.
4. For the competencies **to care** and **to want**, the development among the Madlejr® students is insignificant.



The graph shows the differences in development between students who participated in Madlejr® and the control group.

MECHANISMS OF CHANGE AT MADLEJR®

The research project has mapped out 12 mechanisms of change (pedagogic and didactic tools or methods) used at Madlejr®, which have a positive effect on the development of the students' food literacy.

To know

Mechanisms that support development:

- Hands-on approach with food and kitchen utensils
- From farm to table
- Support and help
- Use all senses
- Theoretical reflection

To do

Mechanisms that support development:

- Experimental approach
- Genuine participation
- Try new and sometimes slightly frightening things
- Hands-on approach with food and kitchen utensils
- Support and help
- Use all senses

To sense

Mechanisms that support development:

- Hands-on approach with food and kitchen utensils.
- Use all senses
- Support and help
- Experimental approach
- Make food from scratch
- Principles

To care

Mechanisms that support development:

- Support and help
- Principles
- Meal social communities
- Cooking social communities

To want

Mechanisms that support development:

- Use all senses
- From farm to table
- Theoretical reflection
- Hands-on approach with food and kitchen utensils
- Principles

DIETARY REGISTRATION - RESULTS

1. The dietary intake log did not demonstrate any significant changes in the students' consumption of fish, fruits, vegetables or meat. These were the focus areas of the research project.

2. With the dietary registration, there was a tendency for children to register fewer sugary drinks (like sodas) after having participated in Madlejr® than the children in the control group.

3. The dietary registration log proved difficult for the students to use despite a series of supportive measures: the researchers were present in the classes most days, the students were taught about the registration in school, and they were motivated by contests.

4. The final dietary registration took place 1-4 weeks after the students' participation in Madlejr®. As such, the results of the changes are based on a short timeframe. *"We understand that it is incredibly difficult to change dietary habits even though we are all bombarded with official dietary guidelines. We can see that Madlejr® improves the children's food literacy and that's an important step in the right direction. Unfortunately, we couldn't demonstrate it in the dietary registration logs."* – Gitte Ravn-Haren, DTU Food.

CONCLUSIONS AND APPLICATIONS – EXAMPLES

Arla Fonden's original objective in participating in and contributing to the research project was to establish the impact of Madlejr®. We achieved this objective. The research concludes that participation in Madlejr® improves students' food literacy.

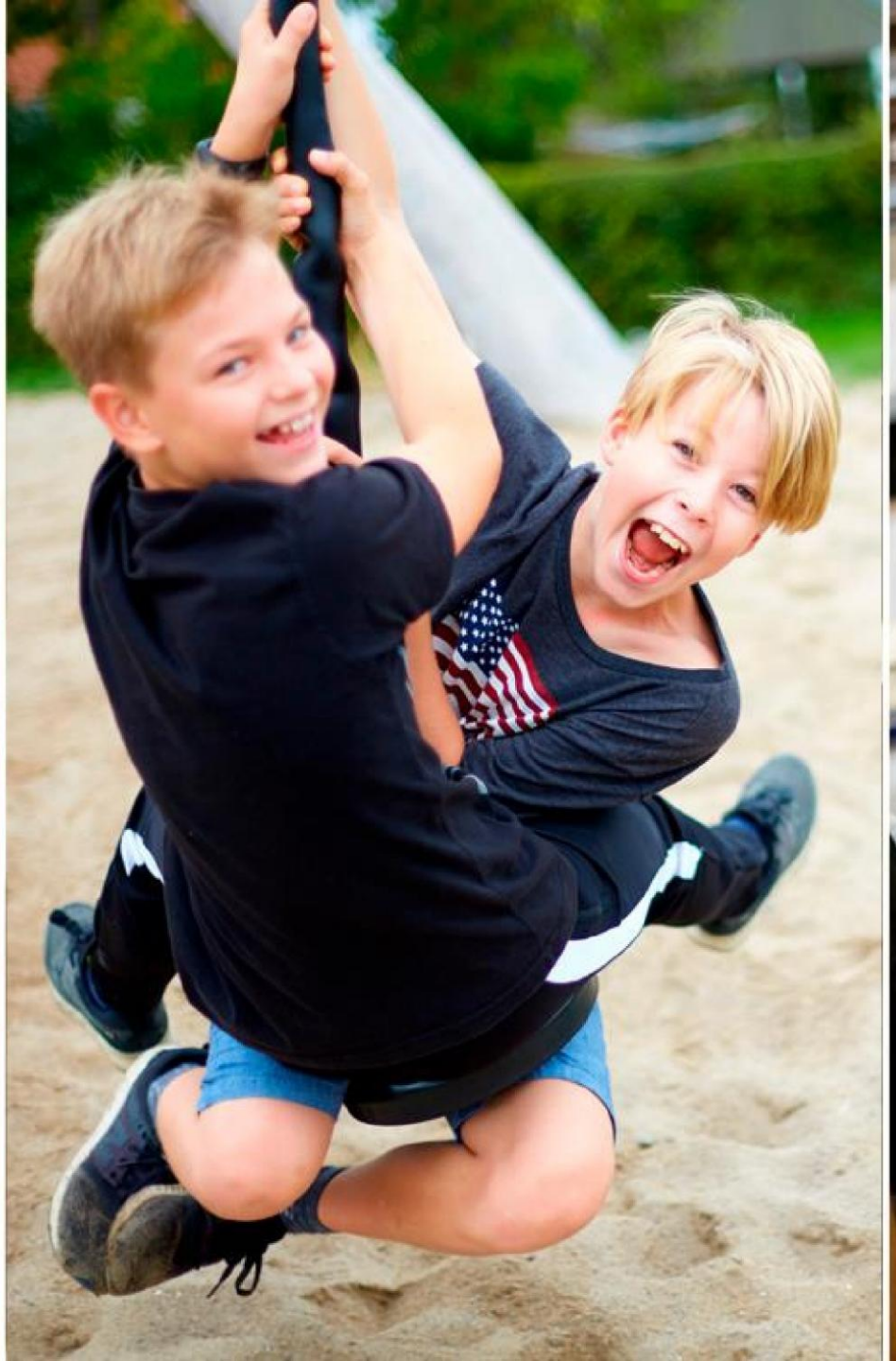
We take pride in the fact that Madlejr® positively develops three competencies within children's and young people's food literacy. At the same time, we should recognize that our approach does not contribute significantly to the development of the two other competencies. However, the research project has identified several mechanisms within Madlejr® which influence these two competencies. The next step is to determine whether these mechanisms should be further developed so we work with food literacy in its broadest sense (cf. Benn, 2015). It should also be noted that students demonstrated lower starting points for these two competencies.

The research project has identified and validated 12 mechanisms of change within Madlejr®'s methods that contribute to improvements in children's and young people's food literacy. These findings provide concrete and valuable insights for the continued development of Madlejr®, as well as for the design of new food literacy initiatives.

We frequently refer to Madlejr®'s methods yet need to define them more clearly as part of our new strategy to transfer them beyond Madlejr® in its current format and on to new food-related activities and settings. The project's insights into the mechanisms of change in Madlejr®'s methods will support this work.

The findings of the research project validate Arla Fonden's activities and demonstrate the impact of its work. This evidence will strengthen our communication with external audiences, stakeholders as well as existing- and prospective partnerships.

The mechanisms of change identified at Madlejr® have the potential to inspire, and in some contexts be adopted by, other organizations and initiatives working to strengthen food literacy (cf. Nann's discussion and synthesis figure). This reinforces Arla Fonden's position within the Danish food education landscape –including its role as a knowledge-generating foundation – and supports its vision of becoming the leading organization for strengthening children's and young people's food literacy by 2026.

Food literacy develops through both informal and formal influences, e.g. within the home and at school (Pendergast *et al*., 2011). It is therefore important to recognize that Madlejr® represents only one part of children's wider environment. This may help explain why no statistically significant changes in dietary intake were observed one to four weeks after participating in Madlejr®. These findings underline the importance of our new strategic focus on embedding and sustaining the learning and development that take place through our food literacy initiatives, thereby supporting the transfer of these outcomes into students' everyday lives.

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