

# FOOD SUSTAINABLE EDUCATION: A SYSTEMATIC LITERATURE REVIEW

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## Abstract

Sustainability is a concern that emerges in current political agendas, reflecting on official documents related to the education of children and young people. It is considered that educating children about food sustainability can contribute to the change in society's habits soon. Considering, this concern has conceived the Project "Oleachain: Skills for sustainability and innovation in the value chain of traditional olive groves in the Interior of the North of Portugal", under the responsibility of the Polytechnic Institute of Bragança and developed through its research centres (CeDRI, CIMO, UNIAG, and CIEB), in close liaison with organizations, associations, schools, and producers. This project arose from the need to value traditional olive groves, olive and olive oil and is realized in different dimensions. The Research Center in Basic Education (CIEB) assumes in this project the commitment to work on the concept of sustainability and the STEM approach, relating it to the olive grove line. This research is based on the theme of food sustainability. It aims to collect the state of art on the role of education in the development of food sustainability. It is characterized by a qualitative study, of an interpretative nature. It is supported by a systematic review of the literature for data collection and content analysis for the interpretation and triangulation of data. The investigative process followed the following steps: (i) search databases for the keywords: "sustainable food" and children and education"; (ii) selection of relevant articles; (iii) read the texts, organizing them in a diachronic way; (iv) elaboration of categories of analysis; (v) textual elaboration, performing the intersection between education and food sustainability. The data highlight the importance of promoting reflection with children around pro-environmental social issues in formal and non-formal education contexts. It is concluded that educational contexts that promote reflection and connection with the community may have a greater influence on the promotion of more sustainable food consumption behaviours. However, this seems to be a subject that deserves greater attention from schools and teachers.

Keywords: sustainability; education for sustainability; childhood education; critical thinking.

## 1 INTRODUCTION

The world today faces several economic, social and environmental challenges caused by factors associated with the technological revolution, environmental accidents, social and economic discrepancies, increased use of pesticides in agriculture and increased per capita product consumption [1]. All this led to the need to define, for the first time formally in 1987, the concept of sustainable development [2]–[4]. Within this framework, sustainable development came to take into account the needs of current generations, ensuring that the needs of future generations will not be compromised [4]. To meet these parameters, in 2015, the agenda 2030 was created, which defines 17 Sustainable Development Goals (SDGs), distributed by 169 targets and 230 global indicators. Among these concerns, we highlight in this article the eradication of hunger, food security, improved nutrition, promotion of sustainable agriculture (SDG2), quality, inclusive, equitable education with lifelong learning (SDG4) and ensuring sustainable production and consumption (SDG12) [1]. The concept of sustainability refers to different specificities, including food sustainability. This encompasses not only food safety, and the consumption of healthy food, but also the appreciation of local and organic products and conscious consumer consumption/behaviour [3].

Thought and designed considering all these issues, and with the perception of the importance of valuing regional products, and the role that schools and educational contexts, in general, can have to achieve this, the project Oleachain was created: Skills for sustainability and innovation in the value chain of traditional olive groves in the Interior of Northern Portugal. Under development by the Polytechnic Institute of Bragança, it relies on the collaboration of all its research centres in close partnership between schools and companies linked to the olive grove. The Research Center in Basic Education (CIEB), in this project, is responsible for the area of education (preschool education and 1st cycle of basic education) and assumes, among other responsibilities, the commitment to work on the concept of food sustainability relating it to the olive sector.

To meet the objectives of the project and collaborate with the studies that address the SDGs in education, this research was designed. It aims to understand the state of the art regarding the role of education in the development of food sustainability. It uses a systematic literature review, with a detailed analysis of 21 articles collected from the SCOPUS, ERIC and Web of Science platforms, analysed using content analysis, by creating analysis categories and subcategories.

## 2 METHODOLOGY

Given the assumption that educational actors can influence the development of sustainability, this literature review aimed to collect the state of the art on the role of education in the development of food sustainability. The systematic literature review followed the line of Higgins et al. which is explained below by [5].

After selecting the theme to be investigated, the first process was to collect the theoretical references, using the SCOPUS, ERIC and Web of Science platforms. The expression "sustainable food and children and education" was used. In this first phase, 46 articles were obtained (28 SCOPUS, 3 ERIC and 15 Web of Science). The search was limited to publications from 2010, whose languages were Portuguese, Spanish and English, resulting in 42 articles (26 SCOPUS, 3 ERIC and 13 Web of Science). Since some of the documents were not open access, some searches were conducted to obtain them and, in some cases, the authors were asked to study them. The articles between the different platforms were cross-referenced and duplicates were excluded, resulting in 21 articles for reading and analysis. The following columns were created: year of the study, authors' names, the title of the study, objectives, methodology and techniques used, results, and conclusions. The data were organised in an ascending order considering the date of publication. After reading and filling in the table, we proceeded to content analysis. To this end, categories and subcategories were created, as explained in Table 1, and considering the data obtained.

*Table 1. Categories and subcategories of analysis.*

| <b>Theme: Education for Sustainable Food</b>              |   |
|---|---|
| <b>Category</b>   | <b>Subcategory</b>                        |
| Challenges in food sustainability                         | Obesity and Malnutrition                  |
|   | Natural disasters and pandemics           |
| Benefits of the Mediterranean diet                        |   |
| The role of different stakeholders in food sustainability | The role of the family                    |
|   | The role of Policymakers                  |
|   | The role of Schools responsible           |
| Education for food sustainability                         | Educational practices                     |
|   | Advantages for children                   |
|   | Inclusion of vegetable gardens in schools |

We first analysed the table and the studies considering the defined objective, highlighting the text in different colours considering the category. The categories went through a process of refinement, from which some subcategories emerged, as shown in Table 1. In the category "Challenges in food sustainability", the following subcategories stood out: (i) "obesity and malnutrition", (II) "natural disasters and pandemics"; Another category emerged: Benefits of the Mediterranean diet. In the category "The vision of sustainability", the following subcategories emerged: (i) "The role of the family", (ii) "The role of Policymakers" and (iii) "The role of Schools responsible". From the category education for food sustainability, the following subcategories emerged: (i) "Educational practices"; (ii) "Advantages for children" and (iii) "Inclusion of school gardens". The analysis of the results presented below was based on the reading of the articles according to the objectives, categories and subcategories defined in this study, following the order presented above.

## 3 RESULTS

It is considered relevant to highlight the current state of food sustainability, highlighting some challenges that need some reflection, to subsequently point out responsibilities to the different stakeholders, highlighting more specifically the role of schools in education for food sustainability.

### 3.1 Challenges in food sustainability

Regarding nutrition, several studies highlight the nutrient deficiency experienced by billions of individuals. Aiming to investigate the impact of nutrition-sensitive agricultural interventions and the pathways linking agriculture to improved nutrition, in a literature review of 25 studies, Wordoffa and Sassi pointed out that in 2016, 23% of children globally under the age of five suffered from stunting and 8% died. One of the causes highlighted is malnutrition [6]. Along the same lines, Girard et al. in a study of shared experiences, discoveries, challenges, and lessons, described intervention projects carried out with children, pregnant and lactating women, from Kenya, Tanzania, Mozambique, and Ethiopia, which aimed to improve the nutrition and health of women and children through the production of orange-fleshed sweet potato. They highlight vitamin A as one of the most deficient micronutrients in the world, causing various problems such as blindness in young children, or even death [7]. Escamilla, in a review of the literature on food security, adds iron, iodine and zinc to this deficiency as key micronutrients. He reveals that 800 million people lack access to food and 0.2 billion people experience deficiency of the key micronutrients mentioned. It also shows that conditions of insecurity change between countries with greater economic power and countries with less economic power. Countries with greater economic power reach values of 10.8% of moderate food insecurity and 3.1% of serious food insecurity, while countries with low economic power can reach 56.5% and 29.5%, respectively. It warns us that the consequences of these factors are not only food-related but also mental, social and psycho-emotional, essentially caused by stress [8]. Low structure, chronic illnesses, depression, suicidal thoughts and altered sleep patterns are often observed in children who experience this problem [9]. Holbem and *American Dietetic Association*, in a theoretical study assessing the necessary position of the *American Dietetic Association* to achieve food and nutrition security in the United States, reported other consequences for children. In addition to the psychological and health consequences already mentioned, such as the increased risk of developing chronic diseases, they reveal cognitive consequences, such as a negative influence on academic performance [10]. Nazzaro et al. found something different in a study of 130 primary school students aged 11-13 years, using interviews to explore the effects of different parental characteristics on children's eating habits and lifestyles. They found that in recent decades, economic, social, and environmental changes have influenced the lifestyle and eating habits of citizens. It found that there is an encouragement to eat out of home or to consume convenience foods, which has led to an increase in the rate of overweight and obesity throughout the population, where children are no exception [11]. Oostindjer et al., add a new fact, in a literature review, which discusses the role of school meals to improve the health and eating behaviours of the population, sustainably, pointing out a duality of realities. On the one hand, there is an increase in food shortages and malnutrition in developing countries, and on the other hand, there is the problem of obesity in emerging and developed countries, essentially caused by the high intake of energy, fats and sweetened drinks [3]. However, Escamilla warns us that obesity can also appear in individuals who experience food insecurity [9].

Wentworth detected another problem, he conducted a study involving theoretical research, to examine the disconnect between government and NGO responses to Cyclone Pam and previous healthy eating initiatives in Port Vila, Vanuatu. It proved that when any kind of natural disaster occurs, all the investment made in food education can be lost. Relating the specific case of Vanuatu, where for decades investments had been made in educating families to reduce canned and imported foods and replace them with locally grown fruits and vegetables, when Cyclone Pam occurred all those investments were lost. Many families became dependent on food aid, which consisted mainly of imported white rice, canned meats and instant noodles, contrary to all previous learning and all the basics of healthy and sustainable food [12]. Another study, conducted by Philippe et al. with 498 children aged between 3 and 12 years, and their parents, through the application of a questionnaire, aimed to assess possible changes in diet and eating habits in families with young children during the COVID-19 blockade in France. During the period before the blockade, it proved possible dietary losses were mainly caused by stress and changes in routines. Most parents reported changes in eating behaviours and practices, which influenced purchasing, consumption, and cooking. Parents report more permissive behaviours during the pandemic, such as a relaxation in food rules and greater permission/autonomy of children to choose when what, how much and where to eat. Some parents report more consumption of enjoyable and sustainable foods, as well as more preparation of home-cooked meals with children. This behaviour change was also noticeable among children, but with a record of negative changes. The children experienced an increased appetite, which led to emotional overeating and increased consumption of less healthy foods, namely the so-called 'comfort foods, rich in sugars and fats [13].

### 3.2 Benefits of the Mediterranean diet

Some studies point out the benefits of consuming a Mediterranean diet. One of them is the research by Annunziata et al. conducted in Italy with 44,984 individuals in 18,864 households, aiming to investigate the current eating patterns of Italian households to assess the degree of adherence to the Mediterranean diet along with the level of organic and local food consumption. They proved that consumption of the Mediterranean diet increases the likelihood of buying organic and local products [14]. Also, Gorgitano and Sodano investigated the Mediterranean diet consumption, aiming to gather information on the actual eating habits of children in southern Italy to (1) assess if they follow that diet; (2) provide suggestions on the role of school nutrition education programmes in promoting more sustainable eating habits. It highlighted that the Mediterranean diet is recognised as one of the healthiest eating patterns, which respects biodiversity and sustainability. However, its consumption has been declining and has been replaced by unsustainable eating patterns [15].

Oostindjer, et al. warn us that even though local and healthy products should be valued, they are not always available in sufficient quantities [3]. Therefore, efforts to achieve food sustainability depend on the whole community, be it farmers, families, health workers, policymakers, schools and others [7].

### 3.3 The role of different stakeholders in food sustainability

The research points to three types of actors responsible for children's views on food sustainability: families, schools and other educational settings, and policymakers.

One of the main influencers of children's eating is families. Serra-Mallol et al. in a study with 30 parents and 29 adolescents used interviews and collective discussions to investigate what "eating well", "good food" and "bad food" means in the New Caledonian family context and categorize current food practices and representations in adolescents' families. They found that the role of food socialisation between parents and children is one of the factors impacting young people's food practices and perceptions [16]. Another study, conducted by Annunziata et al. points out two other factors, economic status, and educational level. This study found that parents with a higher level of education and social status tend to consume more organic food [14]. Nazzaro, on the other hand, reached opposite conclusions, verifying that families composed of independent parents or unemployed mothers are more likely to have children who eat more fruit and drink fewer soft drinks. On the other hand, families with highly educated parents, that is, with a university degree, are more likely to have children with unhealthy habits. It also concluded that the amount of frequency of physical activity on the part of parents influences children's physical exercise [11].

Figuerola et al, in a study conducted with 126 adolescents between 12 and 18 years of age, used interviews and questionnaires to evaluate the effect of educational intervention, accompanied by a school garden as a pedagogical teaching tool, to improve the consumption of vegetables and fruit by Mexican adolescents attending a public school. Another interesting fact was that a comparison between fathers and mothers showed that greater willingness on the part of mothers to encourage their children to consume vegetables and fruit [17].

Regarding the policymaker's role, Escamilla highlights four important aspects for achieving adequate food security governance: multisectoral participatory decision-making; transparency and accountability; equity in resource allocation and service delivery; and multisectoral and multilevel policies and corresponding programmes. It highlights the role of these actors in achieving the Sustainable Development Goals (SDGs), ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture [9]. A piece of research by Finke et al., with 82 participants, highlighted the role of policymakers referring to them as essential, revealing, and necessary. they point great importance to education. The authors used a questionnaire to collect ideas in the form of realistic and useful "tips" that enable people to translate their behavioural intention into actual behaviour, despite emerging situational barriers. They point out that there must be intentionality of policies to have a positive impact on food sustainability, and adaptability to different target audiences. They highlight some examples of measures, such as subsidy allocation, food controls and labelling, sanctions for unsustainable economies, and control of food prices, particularly organic and local food and food packaging [18]. Other studies highlighted the policymakers' communicative competence, considering the ability to reach out to diverse people. They reveal that they can influence the population by communicating clear messages to achieve a sustainable food system [16].

Fink et al point out the great importance of education [18]. Also, Wordofa and Sassi recognise the role of caregivers of children, revealing that their nutritional knowledge can have a positive and considerable

effect on dietary diversity [6]. Other studies point to various responsibilities for schools. Izumi et al. conducted a study with five school nutritionists, where they made use of observation and document review, to explore factors that minimise lunch wastage in Tokyo primary schools and to consider how such factors can be modified and applied in US schools. They mention as the responsibility of schools the construction of menus, the presentation of dishes, the time given for meals, the educational environment and the establishment of contact with the community [19]. Rossi et al. conducted a study in primary schools, where they analysed 52 menus, intending to demonstrate that it is possible to select, from existing school menus, recipes that combine healthy food with low environmental impact. They proved that the school is a privileged environment for nutrition, environmental and health education, as it is one of the main contexts for learning, shaping, acquisition and solidification of habits and lifestyles. They point out the responsibility of providing healthy menus, proving that it is possible to present healthy dishes and influence their consumption, with foods frequently used in the preparation of school meals [20]. In another line, Gray et al. conducted a study with 85 participants in the *Food for Life Partnership* project, which used interviews to provide new insights into the transferability of a national healthy and sustainable food programme to new settings (homes, universities, etc.). It highlights the important role of schools in health promotion, but also the spirit of leadership and, essentially, a collaboration between teams [21]. Oostindjer et al. also assign some responsibilities to the school in the promotion of food sustainability. They emphasise, along with the previous study, that the school should establish a strong contact with the local community, since, in addition to providing food to the school, it can increase the involvement and commitment of all (farmers, children, parents and policymakers) to the same cause. They also highlight some strategies to be used to explore this theme, which follow an active line of teaching and learning. They also highlight the relevance of combining classroom teaching with gardening and agricultural activities in an integrative approach. They talk about the importance of the environment at mealtimes, which should be sociable and pleasant, for example with round tables and tablecloths. They also mention the care that should be taken in the presentation of dishes, so that school meals are not treated as second-class food. They highlight the importance of giving the children time to eat, respecting the rhythm of each one and thus minimising the stress and pressure of mealtimes experienced in some educational contexts. They also highlight another aspect different from those mentioned so far - *marketing*. This should be restricted in schools. On the other hand, the provision of information on nutrition and sustainability, the separation of waste and the elimination of unhealthy foods from vending machines should be increased. They point out another important aspect, the need to integrate food sustainability in the curricula since they consider that food can be a tool for education [3].

The role of schools and other educational settings is then highlighted in more detail, highlighting the aspects to be considered in education for food sustainability.

### 3.4 Education for food sustainability

To address the problems highlighted and move towards sustainability and compliance with the SDGs, it is necessary to invest as soon as possible in education for food sustainability, from the early years. Studies report some aspects and practices to be considered, as well as some benefits and results found.

Schools have their share of responsibility in education for food sustainability. However, studies point out some problems at this level. Oostindjer, et al. highlight two distinct problems, the consumption of unhealthy food and food waste. They reveal that schools provide snacks and drinks with high-calorie content, due to the presence of excess sugars and fats, while the intake of fruit, vegetables and milk is lacking. They also point out that a significant amount of the food that is served in school meals is wasted, especially vegetables, pointing out an average of 12% of all calories per plate [3]. Black et al. came to similar conclusions in their research with primary and secondary schools, through interviews and observations, to describe the development and application of the School Food Environmental Assessment Tools and a new scoring system to assess the integration of healthy and environmentally sustainable food initiatives in primary and secondary schools. Of the schools that were investigated they perceived that their efforts towards the provision of healthy and environmentally sustainable food were very low. No schools reported any initiatives that supported the availability or integration of healthy or environmentally sustainable food across the campus. Even though there was a subsequent effort to provide proposed food choices to support environmental sustainability goals, such as eating foods grown in school gardens, reducing the sale of fully processed foods, and including vegetarian options, just over three-quarters (26/33) of schools scored a 1 in this domain on a scale of 0 to 4. They also understood that even though there were guidelines banning the consumption of some foods in schools, almost all of them (28 out of 33 schools) continued to sell these foods, namely sugary drinks, and foods high in sodium and fats. The schools, in general, did not fully respect the guidelines regarding the nutritional quality of food [22].

A study conducted by Molinario, et al., brought indicators of the impact in adulthood of childhood education on food sustainability. To explore biosphere values in adulthood, connection with nature, environmental identity, and objective knowledge about pro-environmental behaviours, they conducted two studies (one with 185 participants and another with 155), in which they tested intervention models. Their results highlighted those experiences of this nature, as well as exposure to pro-environmental social norms in childhood, lead to increased connection with nature and biosphere values in adulthood. All of this creates and shapes environmental self-identity and influences sustainable food choices during adulthood [23]. Gillan and Raja make an important point when working on these issues, to build on children's everyday lives and experiences. Their study was conducted with grade five children attending enrichment classes and aimed to motivate and empower students to make decisions and develop solutions to reduce the impact of the problem of fishing and land evasion [24].

Several studies warn about the importance and positive impact that having a vegetable garden or garden in a school context, or engaging in family farming, can have. This is because it facilitates the availability of food [16]. This not only facilitates the availability of food but also increases diversity in consumption, as is the case with pulses [6]. The study by Lee et al. highlights this, in an investigation with sixth-form students, 16 in the intervention group and 10 in the control group, to measure changes in attitudes and intentions to make healthy food choices and explore the influence of theoretical constructs. They highlight the positive impact on factors associated with healthy eating behaviour. They refer to the possible effective involvement of community resources in the development and implementation of gardening environments, which enhance a relationship and interconnection of children to local food production and favour learning about environmental benefits of eating locally grown food and access to a positive and sustainable food environment [25].

Figuerola et al., mention the positive impact that can have the integration of gardens in schools combined with food education, in their comparative study between three groups: 1 the group that combined food education with the construction of pedagogical gardens; 2 the group that only developed food education and 3 control group without any type of intervention. Although both group 1 and group 2 had an evolution after the intervention, these effects were even more prominent in group 1. Vegetable intake increased significantly in groups 1 and 2, compared, to group 3 (65.2g/day in group 1 and 44.8g/day in group 2). Energy intake decreased (-158 kcal in group 1 and -80 kcal in group 2), but vegetable and fruit intake increased (up to +21 kcal in group 1 and up to +12 kcal in group 2). This study also demonstrated a positive impact on psychological factors. Group 1 showed greater understanding, reflection and analysis of vegetable and fruit consumption information, which led to learning about the characteristics of a healthy diet and their consumption in daily life. Both group 1 and group 2 showed greater willingness to consume fruits and vegetables daily, becoming aware to their presence at home as well. Group 1 the accessibility to consume these foods also at school, since besides being able to take them from home or buy them, they could get them for free from the garden. In the more detailed investigation of the impact of the school garden, in the interviews they conducted, the participants in group 1 highlighted that the gardens are spaces that motivate them to consume vegetables and fruit since they have access to them during school hours. They mention that this space helped them to reduce expenses because they had access to free fruit and vegetables. They highlight the learning they have achieved, namely the issue of environmental impact, stating that these spaces are low impact, as they planted and harvested them themselves. They mention the satisfaction and pride they feel in cultivating the garden, and in the change, in the path of sustainability and healthy eating, that they have brought about in themselves and the school. They highlight their ability and desire to replicate what they have learned in other contexts, such as at home, and report an interesting aspect that increased their interest in the subject, which is the existence of classes in this outdoor space (garden or vegetable garden). They characterise these spaces as more fun and motivating for learning than the classrooms [17].

Another study highlights the advantages of introducing cooking and meal preparation moments with children. Miller et al, in a study with 15 parents or carers of kindergarten children, through focus groups, to evaluate the pilot program *What's Cooking*, found that this project provoked the involvement of children in several moments: in the preparation of meals, food shopping and decision making. The children developed various learnings, which were also transferred to their parents. Parents were more likely to prepare recipes that the children learned at school, as well as useful cooking utensils and tools (measuring cups, knives and others), increasing their knowledge and confidence in their cooking skills [26].

## 4 CONCLUSIONS

This study, characterised by a systematic literature review of 21 scientific studies, collected from the SCOPUS, ERIC and Web of Science platforms, aimed to collect the state-of-the-art on the role of

education in the development of food sustainability. The content analysis resulted in three categories: current problems, construction of the vision of sustainability: the influence of the different actors, and education for food sustainability.

From the category of current problems, it is evident the presence of social and opportunity disparities. If on the one hand there are billions of individuals around the world who experience food insecurity and deficiency of key micronutrients, putting their health and even their lives at risk, on the other hand, there are increasing cases of under-nutrition and obesity, also with very harmful consequences for the health of these individuals. Although there are reports of nutritional education and support programmes for the most disadvantaged, when a disaster occurs (for example, a cyclone), the food aid offered is contrary to sustainable education. Also in pandemics, such as COVID-19, the stress caused tends to have negative effects on children, leading to increased consumption of 'convenience foods', rich in sugars and fats. It has been proven that, although the Mediterranean diet is part of a healthy diet, capable of promoting biodiversity and sustainability, its adherence and practice have been decreasing. Therefore, it is also important to develop projects that promote the consumption of its basic products, such as olive oil. Research tells us that schools invest little effort to provide healthy and environmentally sustainable food and that much of the food served in schools is wasted, even going against the imposed guidelines.

From the category building the vision of sustainability: the influence of different actors and the important role of families, schools and policymakers are highlighted. Studies indicate that the food consumption and physical activity practices of parents tend to influence the practices and consumption of their children. Also, socialisation between parents and children can be decisive in achieving food sustainability. Studies present contradictory data regarding the impact of the level of education and social status of parents. Some highlight the role of policymakers in ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture. They highlight some examples of measures to be implemented by these actors, such as the allocation of subsidies, food controls and labelling, sanctions for unsustainable economies and food price controls. Regarding education, the knowledge of caregivers and child educators is highlighted as a decisive factor in children's food knowledge and behaviour. The school's responsibility in constructing healthy and sustainable menus, appealingly presenting dishes, giving children time for meals and developing an educational environment that favours and encourages sustainable eating is highlighted. The importance of establishing partnerships with the community is revealed. The need for an active and integrative approach, combining classroom teaching with gardening and agricultural activities, is highlighted.

To address the problems highlighted and move towards food sustainability and compliance with the SDGs, it is necessary to invest as soon as possible, right from the early years. This is because its success has been proven in recent research, with increased consumption of healthy products, reduced food waste and the influence to change bad habits in the family context. Studies highlight the importance of creating vegetable gardens or gardens in educational settings, provoking the consumption of healthier foods, and reducing the energy consumption of less healthy foods. They are characterised as a motivating space for learning. They also highlight the advantages of using cooking as a teaching and learning strategy.

Although there is an awareness of the need to work on these issues from the early years, when analysing the studies on education for food sustainability with children, a very limited range is observed. This is even more striking when focused on children in daycare and pre-school education. The few studies that exist are more focused on the environment, but still do not look at children and young people as agents of change in sustainability. Therefore, it is urgent to develop research and work with children on sustainable food, considering them as active agents of change.

## ACKNOWLEDGEMENTS

This work has been supported by FCT - Fundação para a Ciência e Tecnologia within the Project Scope: UIDB/05777/2020.

This work was carried out under the Project “OleaChain: *Competências para a sustentabilidade e inovação da cadeia de valor do olival tradicional no Norte Interior de Portugal*” (NORTE-06-3559-FSE-000188), an operation to hire highly qualified human resources, funded by NORTE 2020 through the European Social Fund (ESF).

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