

# SCHOOL GOES TO THE FARM: CONCEPTUALISATION OF RURAL-BASED SUSTAINABILITY EDUCATION

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## Abstract

*'School Goes to the Farm' activities are aimed at promoting socio-cultural sustainability and education for sustainable development (EfSD) by improving knowledge among children and youth about the relationship between nature and culture and about the role of rural areas in the society. This is done by developing local co-operation between schools, farms and the regional nature centres. The experiences show that the local school-farm co-operation is an interesting possibility both for the schools and for the farms. Rural-based EfSD excellently meets the needs of contextual, comprehensive and experiential learning. Farms can be exploited as a learning environment in several of the school subjects, and the activity is especially well suited for concretising the goals of the cross-curricular themes. The way the pupils learn in the farm cannot be substituted with learning from books or in the classroom. Complying with the goals of the cross-boundary approach of the national curriculum for basic education it is also easily justified with educational arguments. This article captures the background and set-up of a pilot project. The premise of is discussed on the basis of teachers' and pupils' experiences, and a conceptual model of the contextual approach of rural-based EfSD is presented.*

## Introduction

The schools should provide the pupils with basic knowledge and skills in various school subjects, and at the same time they have to keep pace with the information flow. With the knowledge increasing at an accelerating tempo, this alone is already a mighty challenge. In addition, schools are exposed to new educational demands. This is because modern life also requires dialogue between school and society, and information needs to be considered in relation to the social reality the school is part of.

The overriding challenge is to address current social, cultural, economic and environmental problems that are evident at scales ranging from local to global. The concept "Sustainable Development" (SD) has been introduced to integrate the issues concerning environment, society, culture and economy. SD can be defined as environmental, economic and social well-being for today and tomorrow, it is a worldwide process aimed at securing the prerequisites of good life for the present and coming generations, and in decision-making and activities endeavouring equally to account for the environment, people and economy (WCED, 1987).

Changing the present way of life and adopting more sustainable life styles requires improved understanding of the concept sustainable development. Both the Johannesburg Summit (UN, 2006) and the Millennium approach (Millennium Ecosystem Assessment, 2008) emphasize the role of active citizenship and public awareness in responding to the quest of ecosystem and human health, prosperity and participation. Stemming from this the school is confronted with a new task of coaching the pupils towards active citizenship. The pupils should have attitudes, skills and knowledge to make informed decisions that comply with the aims of sustainable development, and they should also be capable of acting upon these decisions.

The UN has dedicated the on-going decade, 2005-2014, for Education for Sustainable Development (EfSD). The motion stresses the crucial role of education in promoting SD, and emphasises the profound need to integrate the principles, values and practices of SD into education and learning at all educational levels (UNESCO, 2002). EfSD addresses the ecological, economical, social, cultural and ethical principles and values underpinning SD. EfSD is, therefore, interdisciplinary and value-driven aimed at conceptual and behavioral change.

Traditionally, the focus of environmental education is on ecosystem functioning and nature protection (Palmer, 1998; OECD & CERI, 2006). However, "environment" may also be understood broadly comprising both the physical environment and the socio-cultural relations, and in that case environmental education is often regarded as synonymous to EfSD (Hesslink, van Kempen, & Wals, 2000; OECD & CERI, 2006; Wals, 2001). To avoid possible confusion, EfSD is used here as an overall concept covering all dimensions of SD, and it is distinct from environmental education *sensu stricto*.

There is vast amount literature dealing with the theory, methods and outcome of environmental education. Important milestones were the works of Hines et al. (1986/87), Hungerford and Volk (1990), Palmer (1998) and Fransson & Gärling (1999). Theoretical approach has been further developed by e.g. Bamberg & Möser (2007) and by Hansla, Gamble, Juliosson, & Gärling (2008), and various methods have been used such as experiential learning, outdoor education and situational learning (Braund & Reiss, 2004; Chawla, 1999; Palmberg & Kuru, 2000). The initiatives dealing with practical implementation of environmental education are voluminous and rapidly growing (OECD & CERI, 2006; Dyrtrtová, Jeronen, & Pavelková, 2007).

While environmental education has been intensively studied, EfSD has not, and there is clearly a need for contextual conceptualisation and for practices in implementing EfSD. This article describes the realization of a pilot project, and introduces rural-based sustainability education as an example of the contextual approach to EfSD. The experiences from the project and the premise of the approach to contribute to EfSD are discussed by referring to transformative learning theory (Illeris, 2004; Mezirow, 2000).

## Rationale

Consciousness and responsibility of environmental, socio-cultural and economic topics develop in close contact with the surrounding society (von Glasersfeld, 2003). SD is the value basis of the Finnish national core curriculum for basic education, the NCCBE. The curriculum also stresses the links between the school and the world outside the school by encouraging the use of alternative learning environments and by integrating the teaching through broad cross-curricular thematic entities<sup>1</sup> (NCCBE, 2004). Using a cross-curricular approach the pupils are made to consider from different points of view the matters and events tangential to their own lives. The aim is to help the analysis of the multi-faceted and controversial phenomena of the present day world and, thus, to contribute to their objective and critical evaluation. This requires that the pupils process information through critical thinking, and then proactively modify their own behavior. The approach, thus, supports the growing into active citizenship by highlighting the interaction between human activity and the phenomena of the world.

With the cross-curricular approach, the school is exposed to a new educational demand. The approach is a welcome innovation, but at the same time it requires a lot from the teachers, who have been given only a very general idea of what it means, but no concrete tools how to proceed and apply it in teaching. Similarly the concept SD has been introduced only on rather general and abstract terms, and without practical context the meaning may remain obscure. There seems to be, therefore, a need for concretising EfSD with an approach that can be linked to today's actual educational and societal challenges.

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<sup>1</sup> "Responsibility for the environment, health and sustainable future", Active citizenship and entrepreneurship", Communication and media skills", Growing as human being", "Traffic and safety", "Cultural identity and internationality", "Man and technology"

The challenges stem from the alienation of people from the basic facts and praxis of life and living. In the modern, technology based service and information society personal experiences are increasingly based on virtual reality and on the services of the commercial adventure production. Technical devices often replace even personal contacts in human relationships. With the increasingly globalised food system people in general, children and the young especially are losing their ties to rural areas and rural culture, and to agriculture. The route of food from field to fork and back to field is blurred, as are the associated processes and impacts. The balanced interaction between man and nature in general is obscure. At the same the appreciation of farming and food production is eroding. This is at least partly because in the present day world the status is based mainly on the economic performance, and agriculture with approximately one per cent share of the gross national product (Statistics Finland, 2003) is not particularly highly valued.

Inspired by own experiences on farm camp schools (ECO LEARN, 2006) as well as by the Norwegian example on using farms as pedagogical resource (Krogh, Verstad, Nergard, Jolly, & Parow, 2003; Parow & Jolly, 2003) we developed an action model of rural-based EfSD (Risku-Norja & Yli-Viikari, 2008; Risku-Norja, Vieraankivi, & Korpela, 2008) as a response to these challenges. The action model aims at bringing up aware, responsible and conscious citizens. This is done by increasing understanding of the relationship between man and nature and by promoting adaptation of sustainable life styles. Another aim is to develop teaching by focusing on an integrated approach and to expand the learning environments outside the classroom. The focus is on local co-operation between schools and farms, and the overarching aim is to promote socio-cultural sustainability through interaction between school and local society, and to improve appreciation of rural areas and agriculture.

#### Research task

The aim of the pilot study was to contribute to EfSD by developing a contextual approach through farm-school co-operation. The practical applicability of the approach is evaluated by considering its suitability to the schools' curricula and to schools' everyday life, pupils' attitudes towards farming and countryside, the impact of the pupils' experiences and experiential learning on the farm on pupils' knowledge, learning and on their attitudes towards farms and countryside. Teachers' and farmers' attitudes towards and opinions about farm-school co-operation as well as development needs to improve the suitability of such co-operation to the school's curriculum and to the farm's normal work were also considered. Based on the experiences a conceptual model of learning is outlined. The compliance of the approach with the principles of EfSD is considered within the framework of conceptual and behavioural change as discussed e.g. by Hewson et al. (1990), Hungerford and Volk (1990), Duit (1999), Caravita (2001), and Winne (2005) and of the transformative learning theory (Illeris, 2004; Mezirow, 2000).

## Methods

The pilot project involved nine groups of pupils and their teachers from eight lower grade schools (grades four to six), where pupils' age ranges were respectively from 10 to 13 years. All together 204 pupils took part to the project. Farms which took part to the project were local, from the same village than visiting schools, except for one city school which visited a state owned nature centre and traditional farm in the neighboring village. Local farms were family farms and close enough for school groups to travel there by bicycle, skiing or by using public transport.

Programs were accomplished through mutual planning between the teacher and the farmer. Prior to the classes' first visit to the farm, the teacher and farmer(s) sat down together to draw the overall theme, schedule and principles of the visits. They thought through the highlights as well as possible risks and difficulties of the individual visits. The roles of teacher and farmer were clear: in this co-operation the farm provided the framework for the outside classroom learning and the teacher had responsibility for pedagogical functionality and discipline. The main idea was to try to give pupils a realistic and picture of the farm's everyday life and works, and pupils were encouraged to take part to real farm work. It was up to the teacher how deep in action and hands-on work he/she wanted pupils to participate in the farm.

Many areas of farming were represented in the project. Overall themes varied from plant production to horse, pig and sheep farming, to forestry as well as dairy and honey production. Most of the groups had more than one theme during their two to four farm visits. School groups went to the farm usually on mornings and, depending on the theme and amount of activities that were planned for the day, stayed there for a full day (5 hours) or half day (3 hours). All farm visits included packed lunches prepared by the school which pupils had outdoors.

The applicability of the co-operation between school and the farm, its suitability to the schools' curricula, the program's benefits to the parties involved and the further development needs were all studied by using qualitative research methods. The reason for using qualitative methods was the subject of the research itself. When measuring attitudes and feelings as well as developing a new, inexperienced pattern it is important to let the research material to speak for itself. It is not rational to test hypothesis or theories but examine the material elaborately and in a detailed way (Hirsjärvi, Remes, & Sajavaara 1997).

Participating teachers had the most important role in gathering the research data. They kept a diary about the farm visits in view of the program's compliance with the school's curriculum and its success in general. The teachers were asked to describe their expectations and feelings before the farm visits. They were also asked to list possible risks and threats in advance. After a farm day the teachers answered the activation questions. In addition they were asked to evaluate the meaning of the day for pupils and to evaluate the visit in general. After the program, teachers took part in the group interview. The aim was to compile experiences and ideas about the farm-school co-operation for further improvement. The group interview was seen as a necessary platform to allow brainstorm type generation of ideas and critics. Free expression was encouraged.

During the farm visits, in addition to the teacher and the farmer, there were one or two people from the research team to help with the practicalities and to observe the activities, the practical arrangements and the behavior and responses of the pupils in a new learning environment as well as the farmer's first impressions and experiences. The farmers were also interviewed after the program.

## **Results**

### Suitability to schools' curriculum and to schools' everyday life

It was easy for teachers to address the suitability of the farm visit to the school's curriculum. In particular, cross-curricular themes, many of them otherwise difficult to teach in the classroom, were present in the farm programs. This kind of theme is for example 'Growing as a human being' which was present in many activities such as working together, helping other people without getting any material reward, taking care of the animals and having collective responsibility for performance of the tasks. Experiences in the farm also concretized directly themes such as 'Responsibility for the environment, health and sustainable future' and 'Active citizenship and entrepreneurship' with an example from real life. In most of the farms pupils also got to know something about their local cultural heritage and identity as well as the new technology used in farms.

Of the specific subjects environmental knowledge and natural history as well as geography and biology were directly linked to the visits. In addition, the farm program could be exploited as subtexts in most subjects, e.g. outdoor work and cycling or cross-country skiing to the farm as sports, learning diaries strengthen pupils' ability to express themselves in written form and many kinds of examples with practical applicability for the different calculations to be used in mathematics. One class group made a video about their co-operation one school had an art exhibition inspired by the forest visits. Also, other teachers pointed out the possibility to use experiences in a farm later by means of arts or even media education. In their diaries, teachers mentioned some examples of the farm activities that directly met the curriculum: farm and forest animals, forestry, species recognition, different living environments like meadows and shore. Pupils also got to know their immediate surroundings, its nature and place of employment, the life span of local products as well as everyman's rights and responsibilities.

Taking part in the program fitted well in the schools' everyday life. In the lower grade schools, the class teacher teaches most of the subjects to the pupils and can, therefore, fairly freely adjust the schedule to the farm visits. Yet teachers pointed out that organization and practical arrangements of the program took some time as there were several things to agree beforehand. Organization required meeting(s) with the farmer, informing the parents and other teachers about the visit, agreeing with the kitchen about the packed lunch for the pupils and planning the transport to the farm. In most of the cases the farm was close enough for pupils to travel there by bike or by using skis during the winter. Transport was also easy to organize if the farm was located on a public transport route. In cases where other type of transport was necessary, access to the farm required extra money for the chartered bus or extra arrangements to transport pupils in smaller cars. However, all the participating teachers felt that taking part to the program was worth the trouble as the farm and its surroundings offered the pupils a new learning environment which was considered as realistic and genuine and which brought a welcome change to the normal school routines both for the pupils and the teacher.

### Pupils' attitudes toward the farming and farm visits

Overall attitudes of pupils seemed to get more positive towards the farm after visiting it. Especially the visits which included working with animals were only of a positive nature to most of the pupils. Also having the lunch out in farm surroundings or forest after physical work was rewarding and an unforgettable experience especially in those cases where lunch was cooked by the open fire during the winter. Teachers thought that it was good for pupils to see, what a farm actually was and what was happening there. It was good for them to realize that farmers have to also work for their living and that they won't just get free money from the EU. In some aspects like the smell of the animal shelters and the boy's thoughts about the horses being only a girlish thing, the attitudes clearly became more positive after the farm visit. According to the teachers, however, few visits are too short a time to make far-reaching conclusions.

Teachers agreed that the youngest pupils, the 4<sup>th</sup> graders (10-11 years in age), were the best age group when it came to judging the attitudes. They were least reserved towards the visits beforehand. The 4<sup>th</sup> graders were also eagerly waiting for the visits and were involved in all the activities without questioning them. They were willing to gather information about animals before and after the farm visit and keen to work with the farm issues in school after the visit. For most 5<sup>th</sup> graders the farm visit was more interesting than they expected beforehand. Generally they were complaining a bit at first when they had to work in stables, forest or in a pig house, but then they did not want to quit working or leave the farm when the day was ending. 6<sup>th</sup> graders were the most critical towards the farm and working in a farm beforehand and some of them were complaining even in the farm. They would have wanted more free time in the farm and just 'hang around' in its surroundings. However, according to their teacher this negative attitude was more related to adopting an older pupil's "role" as also 6<sup>th</sup> graders were working happily in the farm when the time came to work.

### Learning

The intention of the school-farm co-operation was for pupils to learn about farming and foresting by doing with their own hands in real surroundings. In this way they learned, not only encouraged by active participation but also had a better recollection of their learning because of the memorable experiences in a farm. Gathering personal experiences by doing and seeing things made it easier for pupils to absorb and understand the relevant information at a later stage. Therefore, certain significance of the activities in the farm was the creation of frames of references for later learning.

According to the teachers, even if few visits in a farm were quite a short period of time to observe an actual learning process, they mentioned some things which pupils obviously had acquired; the pupils learned about different types of practical farm and forest work by taking part, and they also learned to work as a group with their classmates and to listen and work with people they had not met before. Visiting the same place several times taught

pupils about perseverance, routines, continuity and patience. This is an important aspect in today's "supermarket society" where pupils are used to throwaway consumption where they just pick new items when they get bored with previous ones. Another valuable lesson for pupils was to learn to respect life itself. For example, being in peace with and taking care of newborn lambs was a deeply emotional experience. Working with animals in general was a rewarding environment for learning empathy towards other living creatures.

#### Teachers' general attitudes and thoughts about the program

Farm-school co-operation program surpassed the teachers' expectations. They thought it was a 'smashing' foundation and were willing to develop the program even further together with their pupils and the farmer. Teachers felt that co-operation with farmers was easy and that pupils' enthusiasm and joy at the farm was very rewarding. It was also a relief to see that initial fears of the children making their own way to the farm among other traffic and being at the farm as such a big group were abated as everything went according to plan. Teachers were happy that the farm programs mostly involved hands-on activities with real work and therefore transformed into a real and positive picture of farms to the pupils.

However, no matter how interesting it was, taking part in this kind of program which was not 'ready baggage' required a lot of extra work and energy from the teacher. Active participation in other projects at the same time was out of the question. Given that this was a pilot project and pupils' visits at the farm were part of the research, reporting about the co-operation was sometimes time consuming for the teachers. They also mentioned that at times, the timetable at the farm or the forest became a bit too hectic.

Teachers had a few important development ideas for future programs as well. They found it important to create continuum and regularity to the program. It would be easier for teachers to start and carry on the program if they would know beforehand that it is coming and that a relationship with a farm would exist already when starting. Having the co-operation with the farm in the schools' curriculum and plan of action would also make allocation of the resources for the program easier. Teachers also pointed out the importance of meeting other participating teachers before and during the program for support and for sharing of ideas.

#### Farm entrepreneurs' opinions about the program

Participating farms were quite easy to find as most of the teachers had had some type of contact with the farmers before, for example, in the case of a farmer's child attending the local school. Farmers were willing to be involved with the program and they found it important to provide pupils with relevant and correct information, counterbalancing prejudices and to contribute to a positive attitude toward farming. They wanted children to understand from where food comes from and how it is produced, to be aware about food safety issues and to learn to appreciate domestic food production. Due to the fact that organizing the program for pupils required quite a lot of time and effort, farmers also expected pupils to be prepared properly. They expected children to have suitable clothing for the current weather and the farm work and that the teacher had control of the behavior of the group.

Generally farmers were happily surprised about pupils' enthusiasm toward the farm work and visits. They thought that even if it required lot of organization and time, visits also brought a nice change to the farms' everyday life. Nearly all the farmers who took part in the program recommended co-operation with schools to the other farmers in their acquaintance. In the pilot project, farm entrepreneurs received a small compensation which was funded from the project budget. However, the money was not the main reason to participate. Farmers saw the co-operation as an appropriate way to improve their public relationships. Co-operation was seen especially suitable for small scale farms, whereas a slight risk of animal diseases was mentioned as a possible threat in bigger animal farms.

Farmers thought that it was important that they could agree with the teacher precisely upon the activities in the farm and that they had mutual understanding on what work needed to be completed. If the farmers had to patch up pupils' achievement or the work that was agreed upon was not done, the eagerness to welcome school groups

decreased rapidly. Mutual feedback already in the farm should be aimed at to avoid the situation that something is bothering on or the other party afterwards.

## Conclusions and Implications

The leading principles of the project were locality, continuity and active participation. Locality means that the focus is in treasuring and improving community-based cohesion, and the co-operation is between schools and farms located nearby. Continuity refers not only to temporally enduring co-operation but also to continuity across the disciplinary borders of the school subjects in order to help pupils understand the intermingling of the ecological, economic and socio-cultural aspects of sustainability. The principle of active participation stresses social interaction, learning by doing and practical application of what is learned.

Local approach increases interaction between the school and the local community. It improves children's knowledge about their home district, which is important for identity formation (e.g. Chawla, 2004). It also increases the commitment of both the farmers and the teachers. Enduring co-operation allows long term planning so that the activities build up a coherent continuum, and are at the same time reasonable in view of both the school's and the farmer's needs.

Outdoor education is known to be an effective way of learning (Amos & Reiss, 2006; Braund & Reiss, 2004; Chawla, 1999; McRae, 1990; Neill, 1997). Pupils' knowledge builds, as its best, from concrete experiences and as a result of values and emotions attached to that. The more senses that are activated in the learning process, the easier these are brought back later. Outdoor education enables pupils to anchor theoretical concepts in the memory and give the concept a concrete and deeper meaning (Palmberg & Kuru, 2000) and it is also in line with the recommendations of the Finnish NCCBE of using alternative learning environments (NCCB 2004).

The goal of SD and the integrated issues it deals with implicitly mean that the EfSD is interdisciplinary and transformative. Active participation exploits pupils' experiences, emotions and senses in teaching, it stresses learning by doing and practical application of what is learned. Experiential learning together with other pupils allows the pupils to use their varying abilities and skills and to learn through own and shared experiences. With practical examples and positive experiences in concrete situations even the difficult matters become understandable. When education is tied to the local environment and to local community, the significance of what is learned is obvious and the pupils have the possibility to apply what they have learned in practice. Education is situational and contextual, and it is spiced with emotions, personal experiences and collective activity. Personal experiences on the farm provide pupils with a solid foundation making it easier to receive and assimilate new knowledge and information.

### Conceptual learning model

The school-farm co-operation allows the combining of comprehensive and contextual learning. In this instance, *comprehensive learning* means that knowledge, activity, emotions, values and all senses are involved in learning. In addition to concepts and knowledge, the focal role of personal experiences, emotions and social interaction for learning is acknowledged. *Contextual learning*, on the other hand, means that the new things are learned by deepening and expanding the existing knowledge, so that the pupils are interested in the things to be learned and understand the links to the previous knowledge meaning that they are able to apply what they have learned in practical situations (Cantell & Koskinen, 2004).

The learning environment on the farm comprises both physical and social levels, the farm and the surrounding nature, the people, their activity and the impacts on the local and societal level. Personal experiences on the farm are obtained through physical activity and emotional involvement by using all different senses, by seeing, smelling, hearing, feeling and tasting. New experiences arouse pupil's interest, which is the key for the hunger to know more. New knowledge has to be reconciled with the existing knowledge and evaluated against it. This initiates active knowledge processing. Interest, new knowledge, activated senses and emotions and critical

evaluation all shape and modify values and attitudes. This process creates the basis for conceptual and behavioural change, which take expression in practical life situations both in personal choices and decisions, and in participation in civic activity.

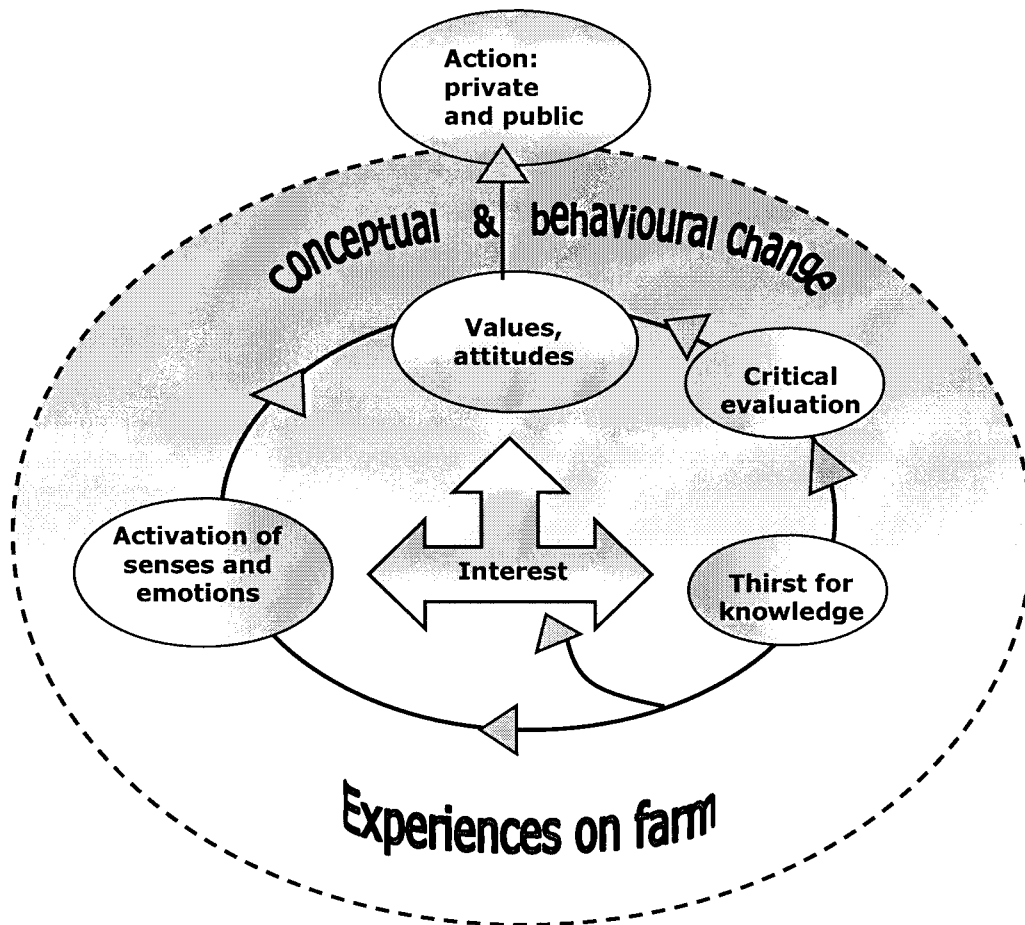


Figure 1. Conceptual model of rural-based sustainability education.

The key elements of rural-based EfSD are contextuality, interdisciplinarity and whole school approach (Morgan & Sonnino, 2008) expanded so as to involve also the actors of the local community. Providing basic knowledge and skills in the teachers' own subject is not enough, but school education needs to be slotted into the social reality and the teachers need to co-operate with each other and with the non-educational professionals of the school as well as with the actors of the local community. So far, it has been up to the teacher's professional skills, probably also to coincidence, how pupils' experiences on the farm can be utilised to support pupils' learning. EfSD requires a reorientation in teaching methods and it is, therefore, a true challenge for pre-service and in service teacher education.

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