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To cite this article: Karen Wistoft (2012): The desire to learn as a kind of love: gardening, cooking, and passion in outdoor education, Journal of Adventure Education & Outdoor Learning, DOI:10.1080/14729679.2012.738011

To link to this article: http://dx.doi.org/10.1080/14729679.2012.738011

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The desire to learn as a kind of love: gardening, cooking, and passion in outdoor education

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‘Gardens for Bellies’ [Haver til Maver] is an organic school gardens project at Krogerup farm in Northern Sealand, Denmark, which provides children with first-hand experiences in a natural, outdoor environment. The general intention of the project is to expand children’s competences and their knowledge of nature, farming and food preparation. This article draws on a new evaluation of ‘Gardens for Bellies’ based on qualitative as well as quantitative studies carried out by education researchers. The evaluation shows very positive learning benefits linked to experience and enjoyment. The outdoor learning programme and environment represents a unique addition to the national curriculum of the Danish state school system, providing the possibility of interdisciplinary and enjoyment-based learning. One of the main conclusions is that the pupils who participate in the ‘Gardens for Bellies’ programme develop a desire to learn. A number of the competencies they develop relate directly to the subject of science, as well as other school subjects. Parents confirm the learning benefits and view ‘Gardens for Bellies’ as a unique supplement to regular school teaching. The experience dimension and a certain communication of love together with the teachers’ passion to show their passion for teaching on site provide one possible explanation as to why the desire to learn is stimulated among the pupils.

Keywords: School gardens; Outdoor teaching; Love as passion; Desire to learn

Introduction

An evaluation of an adventure education and outdoor learning programme (Wistoft, Otte, Stovgaard, & Breiting, 2011) has shown that dedicated teaching in the outdoor learning environment promotes a desire to learn in pupils, irrespective of gender, social background or school grade. This validated the vision of the programme as described by the founder and principal organiser Mr Søren Ejlersen:

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ISSN 1472-9679 (print)/ISSN 1754-0402 (online)
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http://dx.doi.org/10.1080/14729679.2012.738011
www.tandfonline.com
We teach children to grow food and prepare it in a simple way over an open fire. We give life to our primal instincts, and I believe that there’s a lot of energy to be found within these. Also, we fill a vacuum left by parents who don’t feel up to doing all of this. I actually believe that there’s a powerful drive towards fire, earth, the seed, and these core elements of nature that help to give us power (Wistoft et al., 2011, p. 12).

The objective of this article is to present a systems-theoretical re-interpretation of certain findings of the evaluation report. The research question is: how can an outdoor learning programme improve students’ desire to learn?

Research on green education and school gardening has long demonstrated the positive effects of outdoor settings on learning outcomes. Pupils who are taught in a school garden achieve better results at both an academic level and a personal level than pupils who are not (Rickinson et al., 2004; Blair, 2009). Moreover, the school-garden children have improved self-esteem (Hoffman, Morales Knight, & Wallach, 2007), a higher degree of motivation and environmental awareness, and an understanding of the way different aspects of nature correlate with one another (Bowker & Tearle, 2007; Klemmer, Waliczek, & Zajicek, 2005). It is generally agreed that school gardens create a feeling of ownership, improved social interaction within the class group, an increased level of physical activity, and an increased level of parental involvement. But what is less well understood is exactly how a school garden improves the students’ desire to learn. Perhaps this is because our knowledge of outdoor learning outcomes is based on primarily qualitative studies, which are focused on the concrete experiences of students and teachers and therefore conflate the factual and social dimensions of learning environments. For the purpose of measuring outcomes this makes good sense, but if we want to look at motives a more general reflective approach is required.

This article shows how a systems-theoretical approach (Anderson & Born, 2001; Luhmann, 1995) can improve our understanding of how outdoor environments motivate students to learn what is intended in school. More specifically, I present an analysis of a Danish school garden programme called Gardens for Bellies [Haver til Maver], based on a completed research-based evaluation (Wistoft et al., 2011).

The Gardens for Bellies programme has been developed and is being implemented by a group of ecologists, consisting of farmers, gardeners, cooks, teachers, nature guides and agronomists. The adventure education and outdoor learning has been run by enthusiasts over the years at a low cost, and the local municipality covers only the salaries of teachers. Thus, it is an independent non-profit programme. A research team from the Department of Education at Aarhus University has been commissioned to evaluate the programme and the evaluation was funded by the Danish Tryg Foundation. I was the research leader of this group; I have not been involved in the actual implementation or operation of Gardens for Bellies. This article contains my theoretical re-interpretation of selected evaluation findings primarily from the qualitative part of the evaluation of the implementation.

Like the already mentioned studies, the evaluation showed that dedicated teaching in an outdoor learning environment promotes a desire to learn in pupils and, indeed, improved learning outcomes. Once again, however, the experience-focused, qualitative approach left evaluators with little more than praise for the programme’s
results—and no wiser about how the garden environment fostered a desire to learn. It is here that systems theory can be of great help. Using it to distinguish between experience and communicative action we come to understand how the students’ personal commitment to learning is confirmed in decisive ways in a garden setting. Indeed, it can be convincingly shown that this confirmation is achieved through a particular semantic code; namely, ‘the passion of love’ (Andersen & Born, 2001; Luhmann, 1986), which gives a strong and precise sense to what is often vaguely invoked as a ‘desire to learn’. After grounding this claim in an empirical analysis of the Gardens for Bellies project, I conclude by drawing out the most salient implications for educational practice.

The article is structured as follows. First, I present existing relevant research literature in the fields of green education, outdoor learning, and school gardening. Next, I describe the background for Gardens for Bellies and the programme objectives. Then follows a description of how the programme has been evaluated—in terms of both evaluation design and methodology. I then present selected empirical findings that are relevant to the question of the desire to learn, and finally a systems-theoretical framework and a theoretical interpretation.

Other empirical studies

Research in the areas of green education and school gardening has long tried to understand children’s motivation for participation and learning through teaching carried out outdoors. International reviews, partly on the subject of outdoor teaching and learning (Rickinson et al., 2004) and partly on the subject of the effect of school gardens (Blair, 2009), show, among other things, that pupils who are taught in a school garden achieve better results at both an academic level and a personal level than pupils who do not have school gardens as an integral part of their teaching. Furthermore, the school-garden children consume more fruit and vegetables (Parmer, Salisbury-Glennon, Shannon, & Struempler, 2009; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011). As mentioned above, school gardens have a positive effect in terms of improved self-esteem (Hoffman et al., 2007), a higher degree of motivation and environmental awareness, and an understanding of the way different aspects of nature correlate with one another (Bowker & Tearle, 2007; Klemmer et al., 2005). Moreover, the research shows that school gardens create a feeling of ownership, improved social interaction within the class group, an increased level of physical activity, and an increased level of parental involvement.

Previous research on the impact of school gardening on learning has been carried out in European settings (Passy, Morris, & Reed, 2010). A school garden can be an example of an outdoor environment or an element in a larger outdoor learning programme and the Gardens for Bellies evaluation study primary relates to the field of Scandinavian outdoor environment research (Bentsen, Mygind, & Randrup, 2008). The Scandinavian research into the field of outdoor learning shows, firstly, that pupils are more physically active (Grønningsæter, Hallås, & Kristiansen, 2007; Mygind, 2007). In addition, something happens to the students’ social relationships...
when they act and experience in an outdoor natural environment. Among the students themselves, relationships improve as they see and experience each other in new ways, and they often develop a better relationship with their teacher (Mygind, 2009). The combination of outdoor learning with regular classroom learning creates a stable setting for strengthening the development of children’s competencies, socially, on a personal level, physically and possibly academically (Jacobsen, 2005; Bentsen, Jensen, Mygind, & Randrup, 2010), although the academic development aspect has not been studied in depth. Furthermore, Danish research shows that outdoor learning leads to improved well-being among the teachers who teach the children outdoors as they are less stressed than other teachers (Mygind, 2009).

Health education studies provide further evidence that teaching which incorporates work in a garden and a kitchen can contribute to improving both the mental and physical health of children, improving their social life, and provide them with academic knowledge and insight into the correlation between humans and nature (Belle & Dyment, 2008; Ozer, 2007). Research on teacher–student interpersonal profiles and interpersonal behaviour styles of primary education teachers is also significant (Fisher, den Brok, Waldrip, & Dorman, 2011): teachers with different interpersonal profiles show differing capacities and effectiveness at the level of managerial support, and teachers with different interpersonal profiles differ in the degree to which they are able to motivate students in their subject and the degree to which they stimulate achievement. Here, it is important to point out that positive learning outcomes depend upon several things: economic factors, the teachers’ knowledge, core beliefs, commitment and ability to prepare the students for outdoor education; and the teachers’ ability to bring back content from the adventure and outdoor experience to the classroom for incorporation in relevant academic contexts. In any case, a question is how outdoor settings offer excellent learning environments.

Background

The Gardens for Bellies programme has been running at a 175-acre ecological farm in northern Zealand, Denmark since 2006. The primary target group is first to fifth school-year students within the Danish Public School as well as students from remedial or special-needs classes. Since its inception, more than 9000 students have participated in the adventure and outdoor learning programme. The overall aim is to combine experience and activities to enable students to learn about soil and nature, as well as how to grow their own vegetables and prepare meals from them. Within this scope there is also an aim to stimulate an awareness of ingredient quality, aesthetics, sustainability and a broad ‘green sense’ of health. One integral objective is that the programme should provide support to those students who, on a daily basis, are subject to difficult learning conditions in school and therefore have a particular need to grow mentally and learn something of practical value—away from the classroom.

The fundamental pedagogical ideal is to support children’s learning and action competency development, including knowledge, skills and experiences, in a free yet secure environment. By doing so, their approach to and their awareness of nature,
sustainability and health will be improved. The conceptual learning aspects taught through the Gardens for Bellies programme include the study of life science, agriculture, photosynthesis, food preparation and outdoor cooking, ingredient quality, taste and much more. At the same time, the students are outdoors in a natural setting where they—both under supervision and on their own—have the chance to explore and investigate the fields and woods. The founder of the programme describes the objective as follows:

Our aim is, and always has been, to provide the children with an educational journey in relation to nature, the growing of good ingredients and their preparation, which gives them new taste experiences and quality of life.

Over the years, Gardens for Bellies has developed into a comprehensive programme available to 12 schools in the local municipality. During the growing season from April to October, primary school classes visit the site for from 8 to 10 school days. Each class is given its own plot of land with its own gardens, which are tended by the students, who are split into groups. Four different professional instructors teach at the site: a gardener teaches how to grow organic vegetables; in specially designed outdoor kitchens, these vegetables are prepared together with a chef and the students can bring their own produce and recipes for that day’s meal home—a measure that is intended to encourage parental involvement; a nature guide or ranger ensures that the students explore the natural surroundings and organises adventure activities; and, furthermore, a farmer takes the students into the fields and gives benefit of his knowledge about organic agriculture.

**Evaluation study**

Our evaluation strategy had two sections: a process section and an outcome section (Naidoo & Wills, 2009). The process part identified, on the basis of the collected data, to what extent activities were carried out in accordance with the project’s concept and intentions (Figure 1). The following process evaluation criteria were used: learning outcome, teaching quality, project satisfaction, and barriers in connection with the project. The evaluation primarily identified the framework laid down by the programme itself in relation to the learning and competency development of the pupils and the teachers.

The outcome evaluation primarily examined how the pupils’ learning and competency development left its mark on their families. This was studied using questionnaires completed by the parents of the participating children. The most significant limitation of the outcome evaluation was that it does not constitute a baseline study, but rather was based upon the parents’ attitudes towards Gardens for Bellies as well as their perception of what the children gain from participating.

In line with current evaluation research we looked at the intentional and factual learning provided by the programme. How is the teaching expected to lead to learning benefits among students and how does it do this in reality? It applied a number of familiar didactic concepts: episodic and semantic learning, teaching content and
The evaluation is carried out in two stages. The first stage consists of a process evaluation in which a correlation between the fundamental concept and the teaching is identified. The process evaluation is followed up by an outcome evaluation in which the benefits gained by the pupils are examined.

More concretely, the evaluation study focused on several key points and questions. What do the students actually learn and what competences do they develop? How do the students motivate for learning? How do the parents participate in their learning process? Does the backing from the students manifest itself in different ways, or are there some elements common to all? To what extent can the programme be integrated into the national curriculum of the primary school?

Finally, the evaluation focused on specific didactic challenges. Do the teachers organise lessons that in reality take into account the type of learning processes that develop the students’ academic level directly based upon their experiences? Do they learn to conceptualise their actions and experiences, knowing how, why and what they have learned? Do they learn to reflect upon the things they have learned with regard to their existing conceptualisation and other phenomena? What professional, personal and pedagogical competences are required to teach in this adventure and outdoor learning programme?

A number of specific applications within a natural environment setting were identified by the evaluation. Consequently, it also offers a variety of possibilities regarding differing perceptions of food, ingredients and good taste, as well as offering a number of different options for the students. As a result, this makes a concept such as this an
empirical example of the development of a targeted pedagogic strategy. Additionally, Gardens for Bellies offers tools and professional competencies (as farmer, nature guide, gardener and chef) that can support the pupils in active participation in a learning programme that is conducted outdoors and relates to their inquisitiveness, experiences and actions (Wistoft et al., 2011). The evaluation hereby confirms existing research and knowledge concerning competence development in outdoor learning while providing an example of an unusual combination of nature, school gardens and outdoor cooking.

**Methodology**

Since the analysis in this article is based on the evaluation study, I will briefly describe the evaluation methods. Data were collected by means of primarily qualitative but also quantitative methods. The qualitative data were based on: field observations (eight months, from September 2010 to June 2011); individual interviews with principal organisers and municipal consultants; focus group interviews with teachers and students (n = 98), the instructors (n = 6) and parents (n = 18); and workshop observations (n = 8). The quantitative data were based on questionnaire studies among parents (n = 135).

Observations were conducted with the aim of gaining pedagogic insight into how Gardens for Bellies works in practice, thereby illustrating the school garden concept’s content and form. Throughout the observations, focus has been upon the competencies that have been nurtured and developed in the gardens, kitchens and in the natural environment. The observations were documented in writing. Individual interviews with Garden for Bellies principal organisers and focus group interviews with instructors, teachers and students were fully transcribed. The four schools included were selected at random.

The quantitative part of the evaluation was primarily based upon a questionnaire study of the parents of students in school years zero to four from five different schools. In the questionnaires, the parents were mostly asked about their specific experiences and to provide an evaluation of the programme, including the benefits gained by their children. They were also asked about their general opinion of Gardens for Bellies as a concept. Both open and closed responses could be given in the questionnaire. The open responses were later categorised to reflect common themes in the responses given by the parents. By using questionnaires, it has been possible to give an overall indication of the direction of the parents’ evaluation of Gardens for Bellies. Furthermore, the correlation analyses show patterns within selected variables among the parents’ responses. The statistical analyses were conducted in SPSS (IBM, 2011).

The transcribed interviews, notes from field observations and the qualitative part of the parental questionnaires were closely examined by a semantic and open coding procedure, and on this basis the research team found that the statements of learning outcomes could be arranged into four categories. The categories were then described in terms of inclusion and exclusion criteria for the identification statement in each category. The research team divided the material between them and cross-checked their
data selections, working alongside each other, so that they only included statements which the researchers agreed fell within the categories described. The following is not a presentation of the full material, but selected illustrative quotations in the category ‘Learning through enjoyment and experience’, which is the focus of this article. In a systems-theoretical perspective, this methodological approach is referred to as a ‘textual radical hermeneutics’, through which one observes the observer’s observations (Rasmussen, 2004).

**Empirical findings concerning ‘desire to learn’**

As one of many school-garden programmes in the world, Gardens for Bellies distinguishes itself in several respects. First, it is not merely a school garden but an adventure and outdoor learning educational initiative in which nature, food and taste (quality and aesthetics) play a key role in the activities on the site. There is a central focus on the gastronomic dimension and the surrounding natural environment, where the students may explore and play—both on their own and guided by their school teachers and the instructors of the site. This creates a unique learning environment that not only meets various academic objectives but also contributes to strengthening and improving the students’ action competencies, mental and physical health. The students are acknowledged on their own level in a way that is always grounded in what they are capable of doing.

The learning by participating students can, on the basis of interviews and in-depth comments provided on the questionnaires, be listed in four categories:

A. Learning through enjoyment and experiences:
   - Experiencing nature and enthusiasm.
   - Alternative to regular classroom learning (prevents school fatigue).
   - Authentic experiences.
   - Desire to learn through fun or good experience.

B. The ability to use knowledge, understanding and skills acquired:
   - Insight into and understanding of ecology and natural relationships.
   - Insight into and experience of growing vegetables.
   - Knowledge of different vegetables and herbs, and understanding of ‘the soil, the seed and the growth’.
   - New taste experiences and a desire to taste.
   - Interest for and knowledge of healthy food.
   - Knowledge of ingredients and food preparation.
   - Ability to cook over a bonfire.

C. Development of social competencies:
   - Better team-working skills.
   - Strengthening of a feeling of belonging to a group—ability to establish and maintain a community.
• Development of communication and interaction skills.
• Learn to take responsibility.
• Respect for others’ work and property.

D. Learning through the outdoor life:

• Development of motor skills (jumping, balancing, fine motor control, coordination).
• Sensory impressions: listening, smelling, seeing, tasting, touching.

In what follows, the focus is mostly on the first category; that is, learning through enjoyment and experiences. The result is that a framework is established for strengthening the students’ motivation and desire to learn.

The following quotes demonstrate a desire to learn among the participating students:

Well I think that ‘Haver til Maver’ is really good, we learn a lot, and I think that all children in Denmark should be allowed to have a garden and learn how to look after it (boy, third grade).

It was fun that we learned to make food our own. And it was good that there was no one telling us to do it one way or another—we were allowed to do it completely on our own (girl, third grade).

I thought it was really exciting when he [Peter] stood and explained what the animals were called, and if maybe one day you would end up working at Krogerup yourself (boy, third grade).

I think that you learn loads from ‘Haver til Maver’, and you get to experience freedom and you get to experience another way of going to school and how much fun it is to make food and stuff—I love it! (Girl, fourth grade).

I've helped a lot in the kitchen at home and I've taught my parents different ways of making food. Because there is a real chef out there who taught us the different ways that you could . . . like if you get some garlic and squash it under the side of a knife—my dad always stood chopping it up, and I said to him that there’s a quicker way to do it if you do it like this (girl, fourth grade).

I think that you learn much more in ‘Haver til Maver’ than you do at school—you learn loads and loads! (boy, third grade).

These quotations illustrate motivational and learning attributes from the students’ perspective and their desire to learn becomes clear. Before exploring what they are really saying in greater detail, however—that is, before looking more closely at what they mean when they say these things—some specifically empirical competencies should first be examined.

According to the parents, the learning and benefits achieved by their children are many and include an increased desire to learn through enjoyment and experience. Particularly, the pupils’ encounter with nature, as well as the growing of and preparation of vegetables, provide central conditions for learning. A specific benefit from participating in Gardens for Bellies is an increased knowledge of vegetables and, in particular, how to cook them. Ninety-seven per cent of parents evaluated that
their children had gained a greater knowledge of vegetables and cooking. Parents describe a great variety of benefits gained by their children through their participation in Gardens for Bellies—for example:

My child has become more interested in healthy eating and food preparation and helps gladly now when I prepare food. My child also now wants to try new things and has become more curious about diet and vegetable gardening. . . . It’s a fantastic project. It’s given rise to many good talks about why and how things grow (parent of second-grade pupil).

I think that it’s a really good idea. The children come out into natural surroundings and learn to take responsibility whilst also learning to work together on a joint project . . . It’s a different way for them to be together with their classmates. ‘Haver til Maver’ strengthens the social feeling of being part of a group in the class—they are together in a different way (parent of fourth-grade pupil).

The children are learning whilst they’ve got their hands in the soil and are watching their crops go from seedling to vegetable. They are themselves responsible for their own patch of land and take on the task of looking after it. The children thought that it was fun, they learnt to take responsibility, and there was a lot of interdisciplinary learning (parent of second-grade pupil).

The children gain . . . a great interest and insight into growing vegetables and ecology. They gain a lot of interest about vegetables and more. They experience obligation and responsibility with regard to their school garden. They aren’t afraid of trying food and are interested in food preparation (parent of second-grade pupil).

The site (farm) is not just a place where important education takes place. A characteristic of the project is that the children’s engagement is stimulated. They look forward to visiting the farm and the school gardens with eager anticipation, and similarly, the children returning home after a day at the site are full of joy and have a keen desire to talk about what they have been doing:

When he comes home, he’s very happy and tells us excitedly all about what they’ve been doing . . . It’s because it’s fun and a nice place for them to be. It’s fun to prepare food and harvest produce from the garden, play on bales of hay and they get to learn new things in a fun way . . . he has become very committed. [He had] a strong desire to tell about what they had experienced—impressive in a boy who normally doesn’t tell us anything (parent of second-grade and third-grade pupils; Wistoft et al., 2011, p. 47)

The students themselves find Gardens for Bellies to be a great deal of fun and they are both proud and ambitious in terms of the level of learning achieved. They use the word ‘fun’ about teaching as they are concerned not just about play and experience nature. During the course of the Gardens for Bellies programme we have seen such a preoccupation, at least periodically, when the students worked in their kitchen gardens, or were about to cook their food in the outdoor kitchen. It could also be observed when teachers gave instructions or explained the background of an upcoming activity with students. Teachers could alternate between a student’s sense of freedom and their obsession with a controlled activity. The teaching improvement was driven by the outdoor teachers’ desire to give students specific experiences that connected their attention to learning.
Systems-theoretical analysis of the desire to learn

There are various possible explanations for why Gardens for Bellies has this positive effect on the students’ commitment and interest, each approaching the issue from different perspectives. In the following section, a systems-theoretical interpretation of the relationship between experience and communicative activity will be used to identify the powerful emotions that are implicit in what is normally called ‘the desire to learn’. We will see that this desire is nothing less than a ‘passion of love’, expressed in an educational setting.

Experience and action

The qualitative studies cited above are not able to show precisely what it is that improves the students’ motivation, interest and ability to relate to nature. It is here the German sociologist Niklas Luhmann’s systems theory can be of great help. Using it to distinguish between experience and communicative action we become able to differentiate between two dimensions of meaning: a factual dimension and a social dimension. Experience actualises the factual self-reference of meaning, whereas action actualises the social self-reference of meaning (Luhmann, 1995). Putting it more simply, we can say that experience is an interpretation of that which is experienced and therefore links experience to factual experiences; communicative action is an interpretation of action—of the person who is acting and therefore communicative action is linked to the social aspect. In other words, experience is confirmed in a self-referential interpretation, whereas communicative action is confirmed through social interaction (see Figure 2).

These two aspects are closely linked in practice, of course. For example, the evaluation shows unequivocally that its effect is one of meaningful communicative action—action that can be experienced. Also, the pupils cannot avoid experience through communicative action; and, finally, the pupils can react to experience itself, and not merely to communicative action about the experience.

The distinction is nonetheless important from a didactic perspective (i.e. for the purpose of developing a theory of learning). The point is that even though much

![Figure 2. System-theoretical differences between experience and communicative action.](image-url)
teaching in school is intended to develop the pupils’ competencies to act (or other forms of communicative action), we cannot allow ourselves to ignore their actions, not least when it comes to their desire to learn about something they are exposed to (a factual experience). The special experiences the pupils have in this learning environment are closely linked to the instructors and teachers. The evaluation report, for example, describes how the professional instructors adopt their roles—they are what they do—and how they themselves become a form of content within the teaching. The pupils experience communicative action and it becomes factual content.

Drawing on the empirical analyses in the evaluation study (Wistoft et al., 2011) the objective here is to conceptualise the motivation of students in primary school to learn in and about an adventure and outdoor learning setting. As noted, the Gardens for Bellies students have a highly developed desire to learn, but how to understand what this means? Accordingly, the systems-theoretical analysis is guided by two research questions: What competencies and learning outcomes are developed among pupil participants in this particular outdoor learning environment? What reasonable systems-theory reflected explanation can be given of the observed motivational and learning attributes?

A fundamental problem in didactics is how to motivate students (or other education participants) to learn the things that the teaching is intended to teach them. The empirical analysis can, in reality, not say anything about the students’ desire to learn or the level of learning achieved; however, it does show a number of indicators that the relationship between experience and action in a natural setting can pave the way for a unique level of commitment among teachers and students. This particular learning environment systematically links teaching together with experience through sensual impression, aesthetics, actions, ethics and love semantics. The analysis illuminates some of the empirical findings and provides possible explanations about the pupils’ desire to learn, based upon a system-theoretical interpretation of experience-based teaching and a communication of affection. The aim, then, is to explore the observed motivational and learning attributes in a clarifying and general manner that can suggest best practices for adventure and outdoor learning environments.

Passion and communication

Love is a very loaded concept, and often an ambiguous one. Talk of love, like talk of any other passion, can be strategic and therefore, at least from a conventional view, empty. While the desire to learn (and the learning outcome itself) of the pupils is clearly linked to the strong commitment of the instructors in Gardens for Bellies, it remains a strong claim to suggest that these effects follow from the instructor’s love for what they do. In order to support this claim, I will therefore frame it using Luhmann’s distinction between communicative action and experience, which I described above. The instructors do not just say that they love what they do; they act to ensure that the students experience things in a particular way. According to Luhmann (1986) this is characteristic of the ‘code of love’, the structure of a particular kind of social communication. Love is not just a feeling, a passion within a particular person, and it
is not just expressed in words; rather, love is expressed as people act in ways that get
the other to experience the passion as well. So, while love can be seen in the meaning
that the instructors evoke through the words they use, our comprehensive evaluation
material showed precisely that their love of what it is they are doing is reflected in
both their actions and their words.

According to Andersen and Born (2001, p. 141), ‘the love semantic’ is generally
seen as the highest expression of passion on a personal level. In the Gardens for
Bellies programme, the instructors show their love for nature, the soil, crops, and
food in personal and different ways—they do not all love the same thing, and they
each act from their own personal passion. But the point here is that their teaching
and communication cannot be isolated from the recognition and bond they each have
to the object of their love. The nature guide has a love for the woods, ponds, hunting
and other outdoor nature activities. The farmer has a love for the soil, seeds, crops,
the sun, the rain and the seasons, and he runs his farm with great care. The gardener
loves the school gardens and teaches the students to be grateful for the crops in the
gardens and how to care for the soil. He says:

> We teach children that the earth, the seed, fire and air are the power in our world and our
> lives. Earth is dependent on us. We must love it, care for it; and we have to pay back in
> proportion to what we have harvested (gardener).

The gardens, for example, have to ‘sleep’ in winter and are therefore given ‘something
to sleep on’ (alfalfa seeds) in the fall. Because they have given so much during the
summer, they are ‘patted’ and ‘rocked’ to sleep. The cook has a love for the meals
he prepares and protects them from unnecessary colour (the red dye of beetroots, for
example) and from their taste being ruined.

It was the experience during the evaluation study that the views held by the instruc-
tors towards that which they love are an important part of their identity. They really
do care for their cause, and they do so not merely in an educational situation that must
always be based upon the expectations of student learning, but they also consider it as
a way of life that they talk about as primal instincts, taste experiences, quality of life,
energy, drive towards the fire, the soil, seeds, and so forth. But just as it is not enough
to talk of one’s love, it is not enough (from a systems-theoretical point of view) merely
to feel it. The passion must become part of the system’s self-referentially coded com-
mutation. In this case, the passion is doubled by the passion to communicate the
passion, as one instructor says:

> My teaching is my passion for showing the pupils my passion.

It is here, in the way life and passion are brought together, that the most important
elements in the instructors’ identity are created. The teaching does not just express
a view of nature, the soil, crops and food; it also expresses the initiatives that can
be taken for protecting, caring for, safeguarding and committing you to nature, the
soil, crops and food. Students, for example, say: ‘we need to look after the soil as it
depends upon us’. It is not merely a question of certain actions, but about making
these actions tangible and therefore meaningful. In the most extreme consequence,
the instruction deals with providing nature with the opportunity to provide for our needs.

Paradoxically, this form of communication does not require a person to communicate with—no (speaking) communication partner is actually required. The love is grounded in anticipation, and can be seen in the way that it does not make requests for or plead for love (Andersen & Born, 2001). The subject of the love does not need to ask the other part for anything. In this respect, the communication of love is very sensitive regarding what is and what is not done. The instructors anticipate and do things that are good for nature, the soil, the crops and the food, and in this way anticipation becomes the decisive element. In Luhmann’s terms, anticipation is the symbolically generalised medium that is open to a variety of contents and therefore points towards a horizon of possible meanings (Luhmann, 1986). Again, however, it must be emphasised that the communication of love forces action; something must be done (not merely said) so that the pupils can experience things, while it is at the same time immaterial exactly how they are experienced. The teaching is not just about something; it is an expression of something.

The basic mechanism here is one of confirmation. The instructors in the Gardens for Bellies project are responsible for teaching using many symbols to which the pupils can automatically relate with love (smells, colours, flowers, touch, etc.), while being loved at the same time is held to be valuable. The communication of love confirms this value and it is not brought into question. The students experience how the instructors’ love of what they work with—the soil, the gardens, the woods, the food, and the teaching itself—produces even more love that, together with the demonstrable care that they bring to their work and the symbols they invoke, is undisputable. The double passion of the instructors—the passion for what they do and the passion for showing their passion to the students—invites the students into a learning space that instigates among the pupils a desire to learn, a desire to touch and care for the things that they are dealing with, and these experiences confirm their desire to learn, which promotes a positive cycle of reinforcement. The students also acknowledge each other’s achievements (gardens, crops and dishes), and they present their crops with pride and love. Already before the arrival of winter, the students anticipate missing the gardens, as they will have to go without them. They simply love being there. As one boy shouted when he cycled into the farm courtyard: ‘I love the farm, I love the farm!’

**Conclusion and discussion**

Gardens for Bellies is a targeted, pedagogic and didactic strategy. Among other things, the evaluation has shown that the project’s teaching instruments and its intrinsic vocational and professional competencies support the active participation of pupils in an outdoor learning environment relevant to their own lives, their own values and their own ideas and actions. We can conclude that students who participate gain a desire to learn. Moreover, it is the concept as a whole rather than any particular aspect that has shown itself to be the explanation for how the students’ desire to learn is strengthened. Indeed, we have seen that communication and experience are integrated in what systems theorists call a ‘passion of love’.
A number of the competencies developed by pupils can be set in relation to the objectives for the school subject of science, as well as in relation to many other school subjects such as language (terminology and concepts), mathematics, history, physical education, and health promotion. The learning benefits achieved by the students are confirmed by the parents, who view the programme as a unique supplement to the standard school curriculum. The students are invited into an environment where they can act and where their experiences are the central element; in addition, the teaching to which they are exposed here is full of passion and symbolism. Although the results of the evaluation may not be immediately transferable to other contexts, these can hopefully inspire more generalised didactic analyses as well as provide grounds for reflection regarding other learning theses.

The element of passion is a central one and cannot be ignored. Either there is passion or there is not; passion cannot be staged or organised. But it can be reflected, both didactically by the instructor (which could require support) and in a more abstract/theoretical way, as I have shown in this article. Nevertheless, outdoor teaching is a ‘living entity’ that is shown here by the instructors’ passion and the conscious dissemination of this passion. The more general message is that the motivation of the students strongly depends upon the reflected passion from the instructors; it must also be understood that all possible approaches must take this into consideration, even though it is a fact that this passion among instructors cannot be manufactured. This, however, does not mean that it is impossible to undertake initiatives to motivate the desire to learn through this approach. Any educator can strive to educate in a subject that he or she not only is familiar with, but which he or she also likes; similarly, any educator can also strive to educate in order to provide experiences for the students.

For researchers and educational practitioners alike, it is important to verify the stability of these findings and interpretations and to provide more explanations for motivational teaching and learning attributes. Equally, it is important to highlight differences between these explanations and those in other studies. Such research includes both qualitative data such as field observations of both teacher and student participants and theoretical, perhaps philosophical analysis. Moreover, our observations and analysis verify descriptions of existing motivation and learning attributes that have been found in earlier studies. While the explanation of the teachers’ passion for showing their passion and the code of love might be similar in different learning environments, it might very well be that their passion is based on different educational programmes, or connected to their reflection on different educational core beliefs and values.

**Author biography**

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