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Knowing, caring and practice

Investigating the influence of community-supported agriculture on ecological literacy

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Abstract

Despite receiving significant academic attention from a variety of disciplines, the question of how to promote sustainable lifestyles has been said to be so complex that no one model or framework will ever be able to encompass every influence (Kollmuss and Agyeman, 2002). Thus it remains an important area for research, to which this project aimed to contribute. Using the conceptual lens of 'ecological literacy', I present an in-depth, qualitative analysis of how participation in two UK community-supported agriculture schemes influences the ways in which members understand, feel about and respond to environmental issues. In particular, I sought to investigate the argument that place-based and experiential learning are important for the development of ecological literacy and, therefore, sustainable lifestyles. The research suggests that community-supported agriculture schemes can offer learning opportunities conducive to the development of ecological literacy, but that this is significantly influenced by the level and nature of participation amongst members. Active participation, the use of participatory approaches and the influence of motivation are found to be of particular importance, and form the basis of recommendations for practitioners and future research.

Key words: ecological literacy; community-supported agriculture (CSA); participation; learning; community

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Contents

Abstract i

Contents ii

1 Introduction 1

2 Literature Review 2

2.1 Introduction to ecological literacy 2

2.1.1 The role of place-based learning 3

2.1.2 Ecoliteracy in alternative contexts 3

2.2 Introduction to community-supported agriculture 4

2.2.1 CSA: 'Reconnecting' with place 5

2.2.2 Potential mechanisms for developing ecoliteracy through CSA 6

3 Research Design 7

3.1 Empirical Inputs 8

3.1.1 Farm Visits 8

3.1.2 Semi-structured Interviews 8

3.1.3 Secondary Data 9

3.2 Data Analysis Procedures 9

3.3 Limitations 9

3.4 Ethical Considerations 10

4 Results 10

4.1 The Oak Tree Low Carbon Farm CSA 11

4.2 Canalside Community Food 12

4.3 The nature of participation in CSA 14

4.4 Key Findings 15

5 Discussion 16

5.1 Knowing 16

5.1.1 Members' understanding of food systems 16

5.1.2 CSA as a learning opportunity: on 'knowing' 17

5.2 Caring 18

5.2.1 The peripherally involved 19

5.2.2 The actively involved 20

5.2.3 Additional influences on 'caring' 21

5.3 Practice 22

5.3.1 CSA as a learning opportunity: on 'practice' 23

5.3.2 The effect of CSA community on practice 25

5.4 The influence of motivation 26

5.5 Maximising Potential 28

6 Conclusion 29

6.2 Further Work 30

Acknowledgements 30

References 31

Appendices 34

1 Introduction

Understanding how pro-environmental behaviour develops and can be encouraged is a subject of enormous interest in policy-making arenas (Seyfang, 2006; Whitmarsh and O'Neill, 2010). Following the failure of campaigns to generate change through raising public awareness of environmental problems and encouraging pro-environmental values, understanding the so-called 'attitude-behaviour gap' has become increasingly important (Young, 2010). In this context, this research will investigate a concept that attempts to explain why environmental awareness and values alone are often inadequate for more substantial lifestyle change. 'Ecological literacy' arises from the premise that the majority of people in Western society are 'deplaced', whereby their "immediate places are no longer sources of food, water, livelihood, energy, materials, friends, recreation, or sacred inspiration" (Orr, 1992, p126). As society's survival grows ever more disconnected from the well-being of the immediate environment, incentives and the ability to nurture the environment are lost (Pretty, 2002). However, proponents of ecological literacy argue that this loss of connection to place can be remedied through processes of experiential learning in natural environments, which change the way people understand, feel about and act towards the environment (Orr, 1992).

In this research, I will bring together two fields of literature by investigating ecological literacy in the context of community-supported agriculture (CSA), a model of food production that potentially offers a learning environment conducive to ecologically literate ways of living (King, 2008). However, applications of the CSA model are diverse; therefore, levels of participation and the extent to which different CSA schemes offer a learning opportunity will vary significantly (Soil Association, 2011; Cone and Myhre, 2000). In this research, I focus on two CSA schemes in the UK to generate in-depth insights on how these factors interplay to influence participants' ecological literacy. While elements of ecological literacy have been considered in previous CSA research, a holistic analysis that takes into account this complexity has not yet been conducted. To address these knowledge gaps and generate suggestions "for improving the educational and organizational tactics" of CSA (Ostrom, 2007, p113), I will employ a qualitative and ethnographic research approach to answer the following questions:

1. What is the nature of participation in CSA and how does it affect the influence of CSA on participants' ecological literacy? With particular focus on participants':
    a. Understanding of food systems
    b. Sense of connection to place
    c. Ability to practice sustainable lifestyles
2. In what ways can CSA be considered a learning opportunity?
3. How can CSA practitioners maximise the potential for developing ecoliteracy amongst participants?

2 Literature Review

2.1 Introduction to ecological literacy

The author and educator, David Orr (1992), coined the term ecological literacy (or 'ecoliteracy'[1]) to describe how people understand natural systems and ecological-social interactions, and how they feel and act as a consequence. Writing in a context of deteriorating environmental quality, increasing social inequality and economic failure, Orr's use of the term is explicitly value-laden, with establishing sustainability as the objective (1992). Indeed, Orr posited that the *lack* of ecoliteracy in modern (primarily Western) society underlies the present situation – and re-educating society in ecoliteracy offers the chance to remedy it (1992). Inextricably linked to ecoliteracy is the concept of 'place', which here encompasses more than physical location to include the meanings and values of a given place generated through repeated "mixing [of] social functions and natural processes" (Orr, 1992, p129). The concept is useful in distinguishing between ecological literacy and *ill*iteracy, through the distinction between inhabiting and residing in place:

> A resident is a temporary occupant, putting down few roots and investing little, knowing little, and perhaps caring little for the immediate locale beyond its ability to gratify," whereas "the inhabitant…"dwells"…in a mutually nurturing relationship with a place (Orr, 1992, p.130)

To explain why the inhabitant's relationship with the natural world differs so greatly to that of the resident's, ecoliteracy encompasses intellectual, emotional and action components, which Orr described as "knowing, caring, and practical competence" (1992, p92). First, the inability to 'read' environments results from a lack of understanding about how natural systems operate (*knowing*), including the fundamental patterns and processes governing their design (*ibid.*). As such, Western society is now characterised by people who "rarely notice if something is damaged or lost from the local landscape" (Pretty, 2002, p148). This results in failure to recognise the causes and impacts of ecological-social interactions, which in turn prevents critical assessment of human behaviour in relation to the environment, as individuals do not relate one to the other (Orr, 1992). Second, as places are increasingly designed and used without due regard to the natural environments in which they are situated, the result is a shift towards "spaces where people coexist or cohabit without living together" (Augé, 1995, p110). In particular, industrialisation and urbanisation have reduced opportunities to spend time in natural environments, resulting in emotional detachment from nature and its well-being (*caring*), and reinforcing the perceived decoupling of behaviour and ecological systems described above (Pretty, 2002; Orr, 1992). Finally, this emotional detachment combined with more limited access to nature diminishes the will or the opportunity to practice skills of sustainable stewardship

[1] While some authors make a distinction between 'ecological literacy' and 'ecoliteracy', (e.g. McBride, 2011), this paper will apply the interchangeable use of the terms akin to Orr's original use (1992).

(*practical competence* or *practice)* (Orr, 1992). This creates a reinforcing loop of ecological illiteracy, because even if people do notice environmental damage, "they *may not know* what to do*"* to remedy it (Pretty, 2002, p148, emphasis added).

2.1.1 The role of place-based learning

On how to address the problem of ecological illiteracy, Orr writes that a new educational paradigm is required, involving a "rethink [of] both the substance and the process of education at all levels" (1992, p90). Mainstream education has become 'deplaced', so that "four years in a place called a campus culminates in no great understanding of the place, or in the art of living responsibly in that or any other place" (Orr, 1992, p103). In contrast, place-based education would use students' own environments as the subject matter or 'substance', so what they learn bears direct relevance to the quality of their lives (*ibid.*). The 'process' requires opportunities to critically engage with the natural and social processes occurring around them, to respond creatively, to apply what they learn and evaluate tangible results (Orr, 1992; Cresswell, 2004). Learning in this context would be far more *experiential*, rather than simply a question of remembering and reciting given *knowledge.* Ecoliteracy is thus a reiterative learning cycle, in which the three elements are mutally reinforcing (Figure 1). It is argued that encouraging more systemic understandings of the world generate more long-lasting commitments to social and environmental well-being than approaches based on incentives or disincentives (Hayden and Buck, 2012). Therefore, through establishing connection with place, ecological literacy remedies the "deplacement and abstraction of thought which underpin our unsustainable 'business-as-usual' societies" (Wooltorton, 2006, p1).

Figure 1. Ecoliteracy learning cycle.

2.1.2 Ecoliteracy in alternative contexts

Proponents of ecoliteracy advocate mainstreaming place-based and experiential learning in formal education as a means to equip society with the ability to create a more sustainable future (Orr, 1992). However, while not wishing to diminish the importance of this, the narrow focus fails to recognise people no longer in the education system. Ecoliteracy is a life-long process that continues well after

formal education; Orr likens ecoliteracy to the Ancient Greek concept of 'paideia', meaning 'learning in order to live well' (1992). However, for those already 'deplaced', developing ecological literacy will require a "the unlearning of old habits of waste and dependency" (*ibid*., p130). Very little is written on how 'deplaced' people can develop ecoliteracy; however, there is reason to suppose that the ideas behind place-based learning would still hold true, as Maiteny suggests: "The power of first-hand experience in stimulating children's relationship with nature is generally accepted. There is no reason to suppose that this should be any different with adults" (2002, p303). According to Maiteny, pro-environmental behaviour is more likely to be sustained if it contributes to an individual's sense of meaning in life and well-being (2002). Similarly, Carolan writes that through immersion in 'tactile spaces' – the lived experiences of natural and social environments – adults are enabled to develop more practice-based ways of knowing, which highlight connections between the self, others and the environment (2007). Ecoliteracy, therefore, describes the thoughts, feelings and abilities required to live sustainably in place, and offer guidance for how such ways of being can be nurtured. There is space for much research to identify places where ecoliteracy is emerging and evaluate contributing processes and practices; this research will considers one such place.

2.2 Introduction to community-supported agriculture

> If we are to develop sustainable agriculture and food systems – even sustainable economies and societies at large – then we will need to develop *new forms of social organization and ecological literacy* (Pretty, 2002: 168-9, emphasis added).

Community-supported agriculture (CSA) is one of a number of 'new forms of social organization' described variously as 'alternative food networks' (Cox et al., 2008), 'local food markets' (O'Hara and Stagl, 2002), and 'direct agricultural marketing' (Hinrichs, 2000). Soil Association (2011: 4) define CSA as "any food, fuel or fibre producing initiative where the community shares the risks and rewards of production, whether through ownership, investment, sharing the costs of production, or provision of labour." This concise definition sums up the core components of CSA without limiting its scope – as, in truth, CSA describes an incredibly diverse group of initiatives. While most CSA schemes are usually focused on vegetable production, schemes based on the production of beer, bread and preserves can all now be found (Transition Network, 2012). Furthermore, CSA organisational structure can vary significantly, from those led by producers (requiring minimal input from members beyond financial) to those led by the community and variations besides (Soil Association, 2011). However, a consistently important element in CSA is the sharing of risk and reward through one or a combination of the mechanisms mentioned above. The uniqueness of the CSA model continues to draw significant and sustained interest from academic researchers investigating sustainable food production and consumption (Brown and Miller, 2008).

2.2.1 CSA: 'Reconnecting' with place

The idea of 'reconnection' is well established in both the CSA and ecoliteracy literature. Cone and Myhre discuss CSA in terms of the opportunities it provides to connect members to (i) a specific piece of land, thereby generating awareness of the seasons and of the place's history and future; and (ii) a community, in which they can generate a shared culture based on similar ideologies (2000). Generating connections to these two dimensions of place – the physical and social – are crucial for the development of ecoliteracy (Orr, 1992). In terms of physical place, Orr describes natural systems as a ready "laboratory for observation and experimentation – a library of data about geology, history, flora, and fauna" (1992, p126). As CSA schemes vary in their organisational structure and primary produce, the extent to which they offer access to this 'laboratory' will vary. However, as most forms of CSA provide members at least *some* opportunity for direct and sustained interaction with nature, they can usually be considered 'place-based' in the physical sense (Soil Association, 2011). From a social point of view, the idea of 'reconnection' was echoed in the unprompted practical and ideological aims of CSA farmers in a recent report on CSA in England (*ibid.*). A number of the statements resonate with the ideas behind ecoliteracy (Table 1), implying a desire to provide members the opportunity to experience working with growers on the farm in order to build relationships with each other and the land.

Table 1. Priorities of CSA farmers. Aims related to ecoliteracy highlighted. (Soil Association, 2011, p17)

Ranked aims
To provide a service where private/public provision failed (ranked first by 50% of initiatives)
To provide employment (paid and/or volunteer) opportunities (20%)
To provide a social service for those at risk of social exclusion (7%)
To provide training opportunities (3%)
Additional unprompted aims
To provide health benefits.
Honey bee conservation.
To reconnect people with the land where their food is grown.
To reconnect people with land.
To feed people.
To give people the opportunity to grow their own food.
To create an outlet for fruit.
To provide organic veg to local people.
To grow veg communally.
To get more people regularly eating our potatoes.
To bring underused land back into production in a benign way.

On developing connection to place, similar language is used by CSA researchers and theoretical geographers. For example, Kneafsey et al. write that "'reconnection' is a process rather than an end-state, and it conveys a sense of 'doing and becoming'" (2008, p32). Similarly, Cresswell writes that "places are never established. They only operate through constant and reiterative practice" (2004,

p38). Thus, CSA is considered a place for potential reconnection between producers, consumers and natural systems, however less is understood about how those connections are made or experienced by members. The following section will summarise the contribution of existing research to understanding this phenomenon, highlighting throughout the gaps in the literature that form the agenda for this research.

2.2.2 Potential mechanisms for developing ecoliteracy through CSA

The role of participation

Much focus in the literature has been on how participation affects members' knowledge, values, motivations and connections to place, typically finding that 'active' or 'higher levels' of involvement result in deeper understanding and commitment to CSA (Hayden and Buck, 2012; Kneafsey et al., 2008; Cone and Myhre, 2000). In terms of behaviour change, CSA has been praised for its ability to encourage pro-sustainability lifestyle change through a phenomenon known as the "graduation effect", whereby members are "spurred to address" other areas of consumption having considered the implications of food consumption (Cox et al., 2008, p212). However, wider lifestyle or behaviour change does not always materialise from participation in CSA (e.g. DeLind, 1999), suggesting the 'attitude-behaviour gap' can occur within CSA (Kollmuss and Agyeman, 2002). Nevertheless, a number of strategies have been noted for their role in supporting behaviour change, including the importance of communication and interaction within CSA (Cox et al., 2008). By looking at CSA through the conceptual lens of ecoliteracy I aim to add to and complement this work by focusing on whether and how CSA's potential as a learning opportunity can "change the way people live, not just how they talk" (Orr, 1992, p90).

The role of community

CSA schemes have been "heralded as offering opportunities to develop close relationships between growers and eaters and to aid community development" (Cox et al., 2008, p204). Participation can increase the importance of the motivation 'to support local farmers', over other more instrumental aims, such as for healthy and high quality food (Soil Association, 2011, p15). Both farmers and members are often concerned with building relationships with each other and creation of community (Soil Association, 2011; Kneafsey et al., 2008). However, tensions in CSA have emerged over the loose definition of 'community' (Day, 2006); particularly between those for whom it implies connection through shared interests and those for whom it is based on "mutual relationships of rights and obligations, on reciprocity" (Cone and Myhre, 2000, p196). While CSA may have the potential to "create a more integrated community" (Hinrichs, 2000, p.300), individual contexts have a strong influence on members' experience of community in CSA (Hayden and Buck, 2012). Therefore, there

is a need to explore how different members interpret and experience 'community' in CSA, and to consider what this means for the development of ecoliteracy.

CSA as a learning opportunity

A number of authors have recognised the role of CSA as a learning opportunity. King noted the potential for alternative models of food production to generate ecoliteracy through processes of "shared and reflective learning" (2008, p123). Similarly, O'Hara and Stagl concluded that learning is an important part of CSA's contribution to sustainable development (2002). However, the questions of what and, especially, how members learn through CSA have received less attention. Research indicates mixed opinions amongst CSA farmers on whether part of their role is to educate people. In a recent report on community supported agriculture, the Soil Association found that only 40% of initiatives in England considered providing education as an important service, although a greater 77% counted "education or training more broadly amongst the products and services they provide" (2011, p32). These numbers suggest that while 'education services' of some description may form a part of the activities of many CSA schemes in the UK, it is not a priority to most. Cone and Myhre (2000) found the CSA farmers they interviewed were very committed to educating people, even those *beyond* their membership: some working with local schools, churches or other organisations. Whereas, the CSA farmer interviewed by Kneafsey et al. expressed uncertainty about being considered an 'educator' (2008). However, a recognition of consumers' lack of awareness of the seasonality of food and anxiety from dealing with unfamiliar products manifested in a desire to 'reconnect' consumers with their food and its production – a process "seen to depend on education." (*ibid.*, p103). Thus, while formal education may not be central to a CSA farm's activities, this does not necessarily mean *learning* more informally is not occurring. As education is seen as crucial for the development of ecoliteracy (Hampson, 2012), research on whether and how CSA provides a learning opportunity would be useful.

3 Research Design

This research employed a 'partial' ethnographic approach to investigate the influence of participation in CSA on ecological literacy. As ethnography is concerned with understanding the culture of a specific group (Cresswell, 2009), it was deemed most appropriate for addressing the research questions, which required in-depth analysis of the processes and practices within complex social situations (Denscombe, 2011). The approach was 'partially' ethnographic because circumstances dictated that this research could not be conducted over the long time scale that is usually the case with ethnography (Robson, 2002). Nevertheless, the research design was based on gathering multiple sources of data, including multiple perspectives (Denscombe, 2011), and using analytical methods designed to interpret the meanings participants' derive from their understanding and experiences

(Winchester & Rofe, 2010). While qualitative research on case studies cannot be generalised to whole populations, this form of research can make valuable contributions to theory (Bryman, 2012).

3.1 Empirical Inputs

Primary data collection was conducted during October and November 2012 with two case study farms: Canalside Community Food in Warwickshire and The Oak Tree Low Carbon Farm CSA in Suffolk. These farms were selected because each offered a different example of how CSA can be organised, but member participation in the farm work was an option at both. Due to time constraints of this research, farms were also selected on the basis of being easily accessible (i.e. relatively near railway stations).

3.1.1 Farm Visits

Each of the CSA schemes was visited once, on days when members were able to volunteer at the farms. This enabled observation of participants in their natural setting, where they would be more likely to engage in typical patterns of behaviour (Robson, 2002). Extensive notes were made of each visit at the time using an observational protocol that distinguishes between descriptive and reflective observations, described by Cresswell (2009). These were later typed up and integrated into the analysis procedures, explained in section 3.2. Photographs were also taken as additional evidence and for reference to visual reminders during the remainder of the research process.

3.1.2 Semi-structured Interviews

Interviews with CSA staff was secured from the outset: one with the main grower at The Oak Tree; two at Canalside, with the main grower and the administrative worker. Following the site visits, members were invited to take part in telephone interviews via emails from each scheme. As such, the sample of members was self-selecting: Canalside (n=4) and The Oak Tree (n=1). All eight interviews were recorded and transcribed (Appendix 1), the majority being conducted over the phone, except that of the main grower at Canalside, which was conducted at the farm. Direct quotes will be indicated using the code 'Px' (P = participant; x = interviewee number). Interviews were semi-structured, in order to ensure key topics were covered but with enough flexibility to allow participants the freedom to express topics discussed in terms meaningful to them (Drummond and Marsden, 1999). Overall, interviews considered changes over time and aimed to identify the "significant causal powers" influencing ecoliteracy in CSA (*ibid.*, p38-39). Questions were based on extensive reading of past literature on both CSA and ecoliteracy, generating key themes and topics of enquiry (e.g. Table 2). These were organised into an analytical framework to add flexibility to the interview format and for later use in the analysis stage of the research (Appendix 2). The questions were piloted on a number of participants of a local CSA scheme, as recommended by Bryman (2012), which resulted in increased flexibility of questions, inclusion of 'prompt' questions and the addition of a fifth 'evaluative' column, in which contextual factors were explicitly taken into account.

Table 2. Breakdown of themes within ecoliteracy generated from literature review.

Knowing	Caring	Practice
Factual knowledge Understanding (Beliefs)	Feelings Emotions Motivations Connections Relationships	Behaviour Experience Ability / skills Application of knowledge Accepting feedback

3.1.3 Secondary Data

Publicly available information from each scheme's online presence (including websites, blogs, newsletters, forums, and social media profiles) was used to contribute to building up a picture of the nature of participation in each case study. Secondary data also informed the interview questions and better directed research in the early stages, by providing background information on both schemes in participants' own language (Cresswell, 2009). In generating case study narratives, I employed Denscombe's advice to consider physical, historical, social and institutional locations as the starting point (2011, pp62-63).

3.2 Data Analysis Procedures

A threefold approach to data analysis was employed. First, member involvement in each scheme was mapped and organised both visually and as case narratives, enabling identification of connections between individual experiences and the contexts from which they emerged (Maxwell, 2005). Second, the analytical framework was used to organise and code data across the main themes of ecoliteracy: knowing, caring and practice. Third, transcripts were coded in order to further organise data and uncover any themes missed from the original framework, using categories suggested by Taylor and Gibbs (2010). Coding proved less useful as it had the effect of fragmenting the data rather than drawing out connections, as observed by Bryman (2012). However, when combined with the other approaches, having clearly categorised evidence to hand was useful. Data analysis was an iterative process conducted throughout the research, so as to continually encourage reflection on emerging results, including identification of patterns, connections and relationships (Rubin and Rubin, 2005).

3.3 Limitations

The unpredictability of member involvement in the research was a necessary limitation, the reasons for which were twofold. First, as the visits were intended for the observation of members in their natural setting, no special arrangements could be made to ensure a certain number of members were present. Therefore, as it happened, only two volunteers were present during the visit to Canalside (only one of which was a member), whereas at least a dozen members were present during the visit to The Oak Tree. This pattern was reversed with the interviews, as while four members of Canalside volunteered to be interviewed, only one member from The Oak Tree was formally interviewed.

However, this eventuality was considered prior to commencing the research and informed the strategy of collecting data from three sources. Indeed, part of the reason for selecting the two case study farms was their high internet presence. Had circumstances allowed it, a fully ethnographic research process (involving long term cyclical data collection and analysis) would have overcome these issues through increasing the opportunity to engage more participants (Bryman, 2012).

The sample of interviewed members is potentially biased as participants were self-selecting, therefore, particular experiences of CSA are likely to be missing from this research and the results are not generalisable to the entire member of either CSA (Cooke, 2009). However, as participants had qualitatively different experiences of both participation in CSA and ecoliteracy, and the research is not intended to be generalised to other CSAs, the results are still useful.

Phone interviews were specifically chosen as interviewees tend to feel less inclined to give socially desirable answers, and due to restrictions of time and cost (Robson, 2002). However, some participants were a bit distracted due to doing something else at the same time and occasionally the quality of the recordings was poor, so that a few words were unintelligible and could not be transcribed.

3.4 Ethical Considerations

A number of strategies were employed to ensure the interests of participants were safeguarded first and foremost, in accordance with Bryman (2012) and Denscombe (2011). On registering interest to be interviewed, key information was conveyed to participants in writing, including the subject of the research, how the data would be used and the right to withdraw, so they understood what the questions would address before consenting to continue in the research. Data was used sensitively, with primary consideration given to participants' rights, interests and wishes. All accounts and records have been kept anonymous, although participants did consent to references being made to specific individuals in the form of, e.g. 'farmer at The Oak Tree'. Participant observation was entirely overt: details of the research were explained if requested and permission was obtained for photographic material.

4 Results

This chapter addresses the first of the research questions posed in chapter 1, on the nature of participation in CSA and how it influences participants' ecoliteracy. I offer case narratives of each CSA scheme, before presenting a framework for understanding the nature of participation in CSA. I then summarise the key findings regarding the impact of participation in CSA on each element of ecoliteracy. An integrated discussion of the remaining research questions is presented in the following chapter.

4.1 The Oak Tree Low Carbon Farm CSA

Figure 2. The Oak Tree Low Carbon Farm CSA (Researcher's own, 2012)

Established in 2010, The Oak Tree Low Carbon Farm CSA (henceforth, The Oak Tree) aims "to produce good food all year round, with the lowest possibly [*sic*] carbon emissions, as a viable business – and having a good time while doing so" (The Oak Tree, NDa). With support from the local Transition group, The Oak Tree evolved from its original, unsustainable business model as a private market garden to a CSA scheme. It is now a not-for-profit Community Interest Company run by three directors, providing 36 year-round weekly shares. The Oak Tree describes itself as "a community of people growing food together" (The Oak Tree, NDb) and as such, in addition to a weekly payment, members are required to volunteer on the farm (Table 3). This is made flexible in two ways: first, members can consolidate their hours into fewer full-time days across the year; second, while weekly 'work parties' are held for participants to work on the farm together, members can volunteer whenever is suitable for them, as the founder and main grower explains:

> There is always a list of work jobs to do in the CSA shed, and our members are welcome to come and do that any time during daylight hours. They have the access code. So… sometimes I'll turn up, and miraculously a whole load of work will have been done! (P7)

The founder was acutely aware of the value of member involvement, which the scheme depends on to meet its production targets ("it's *quite* sensitive to the amount of work that people put in", P7). In order to maximise support from members and guard against a changing (and sometimes hostile) environment, the scheme takes an adaptive approach to how it organises. For example, when a number of members were struggling to complete their volunteering hours, a strategy was devised whereby members were offered the chance to purchase farm equipment instead. Informally, The Oak Tree is highly participatory, where growers, members and directors work together in an open and co-operative manner. However, there is a degree of hierarchy as ultimately the directors have full decision-making power. Nevertheless, the consultation of members remains important, and their knowledge and skills are welcomed and utilised. Members' ideas and expertise have contributed

significantly to the scheme's development, enabled by an approach that advocates giving members the freedom and responsibility to enact approved ideas, whilst providing the necessary support. This has materially benefitted the scheme as members' support has been both intellectual and practical: including maintaining the accounts and budgeting, leading the construction of polytunnels (Figure 2) and managing the purchasing and on-going maintenance of equipment.

Table 3. Summary of case study key details.

Case study name	Number of shares	Cost of shares per week	Additional members obligations	Volunteering opportunities at the farm	Social events	Management
The Oak Tree Low Carbon Farm CSA	36	£7.50	An average of two hours work per week in the summer (one hour a week in the winter).	Weekly 'work parties'. In addition, all members have access to the farm and are welcome to complete work in their own time.	Monthly pub socials, seasonal celebrations.	Community Interest Company managed by three directors.
Canalside Community Food	130 7	Large £13.50 Small £9 Mini £6 Workshare £0	None, but members are encouraged to volunteer at the farm. Half a day's work per week in exchange for a share of vegetables.	Two weekly morning volunteering sessions. Additional seasonal events, e.g. the annual potato harvest.	Regular and seasonal socials at the farm, including wassailing, star gazing and barn dances.	Steering group representing managers, employees and members.

4.2 Canalside Community Food

Figure 3. Left: Canalside Community Food's vegetable collection point inside the yurt. Right: close-up of muddy turnips (Researcher's own, 2012).

Canalside Community Food (henceforth, Canalside) was established in 2005. The seven acre scheme forms part of a larger family farm pursuing a diverse range of sustainable land uses. Since inception, Canalside has increased its production capacity and now employs a number of staff to coordinate the growing and administration of the scheme. Canalside aims to:

> …provide fresh, organic, seasonal, locally grown fruit and vegetables and to involve local people in the process of producing the food they eat (Canalside, ND).

To this end, the scheme is certified organic by the Soil Association, and provides 130 year-round weekly vegetable shares (Figure 3). An assured annual income of approximately £60,000 pays wages and allows the scheme to continue its development towards sustainable practice, overseen by a steering group of managers, employees and members. The monthly steering group meetings form the primary forum for conducting reviews of the scheme, and the input of members to this is highly valued. Beyond this, the scheme aims to keep the communication channels between the farm and members open and active; giving frequent updates on the situation at the farm and responding to feedback. Employees reported that a high proportion of the membership also attends the Annual General Meetings.

Canalside offers a number of different membership options (see Table 3). The majority are vegetable shareholders, however a limited number of 'workshare' members are also available (all interviewees were shareholders, although the administrative worker used to be a 'workshare' member). Social members pay a nominal monthly fee to support the scheme. All members are entitled to attend the events put on by Canalside, including weekly volunteering sessions, special seasonal volunteering sessions, social events and AGMs. Production is led and coordinated by one main grower, primarily supported by some additional paid assistance and the 'workshare' members. Regular support from the main shareholders is less forthcoming; employees estimate about half only visit the farm to collect their vegetables ("we've noticed over the past couple of years that the amount of input from members seems to be dropping", P1). This was evident during the farm visit, where only two volunteers were present: a 'workshare' member and a young student completing the Duke of Edinburgh Award. They were keen to have more volunteer help, partly to improve the viability of the project ("it's what *keeps* our labour costs down and means the share remains affordable", P1) and for shareholders' own sake ("I just think there's a lot to enjoy here and a lot to learn, and if you look at it from the right angle it's a really inspiring place", P2). As such, the scheme is investigating strategies to "engage more creatively with people" (P1).

Nevertheless, Canalside finds some of their seasonal harvesting events draw significant support from the membership, particularly the combined potato harvest and camping social. Members have also contributed in other larger-scale projects, e.g. helping to build several of the low-impact structures on site, including the geodome and pole barn. Many members reported volunteering for Canalside in other ways, with particular mention for working on the scheme's stall at the annual Peace Festival and Food and Drink Festival. In addition, one member provided significant financial support in the form of an interest free start-up loan.

4.3 The nature of participation in CSA

Despite the organisational differences between The Oak Tree and Canalside, the opportunity to be actively involved was available in both schemes, and both aimed to involve members in the growing of produce. In relation to these specific case studies, member participation can be understood as operating at a number of different levels of involvement, depicted in Figure 4. As surveying the entire membership was not possible, the diagrams are based on all available data (formal and informal accounts of members and employees, secondary sources and wider literature) and are intended to serve as heuristic devices for understanding typical patterns of participation at each CSA. Thus, sizes and ordering of the levels indicate the frequency of involvement and/or the average estimated numbers of members who typically participate at each level. Within levels there also exists a degree of qualitative difference between members' experiences. Thus, all members have knowledge about the scheme all of the time (level 1), albeit not to the same depth and not always consciously. Similarly, nearly all members engage at level 2, using the vegetables they receive, throughout the week. Collecting vegetables from the farm (level 3) occurs a maximum of once a week. Some members of Canalside do not collect their share from the farm. Differences between the case studies become particularly pronounced at levels 4 and 5, where participation tends to become either less frequent or limited to fewer individuals, particularly at Canalside where volunteering is optional. Thus, throughout this discussion references to 'peripherally involved' members refers to those who predominantly participate at levels 1-3 (occasionally level 4), whereas 'active' members take part at levels 1-5. On the whole, members of Canalside were peripherally involved, whereas members of The Oak Tree were more actively involved. However, it is important to note that this distinction is not necessarily representative of the entire membership of either scheme, just the participating sample of this project. The following chapter will use these models to explain how participation in CSA influences members' ecoliteracy.

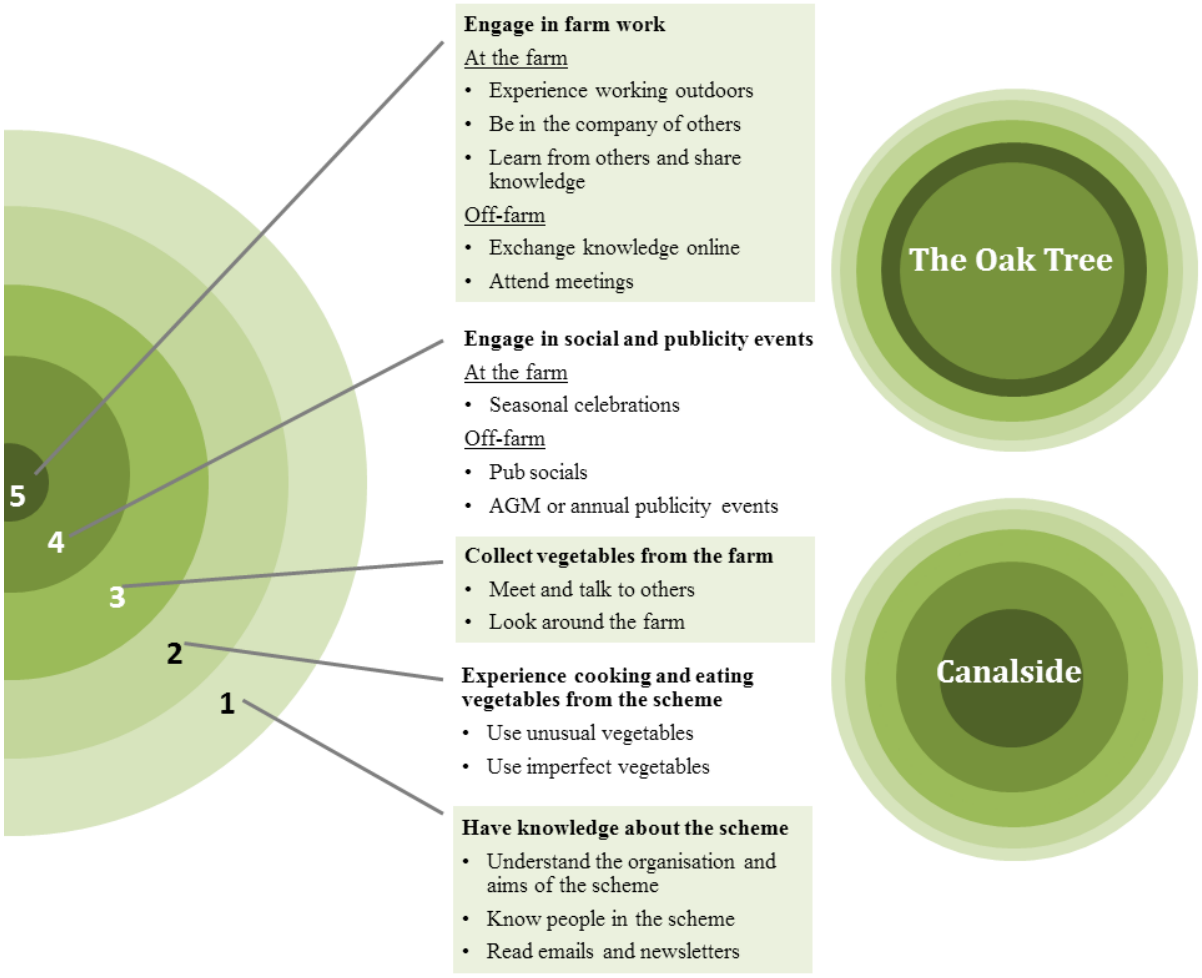

Figure 4. Left: key. Right: visual representation of participation at different levels of involvement in the two case studies based on sampled populations. Note that levels 4 and 5 are inversed at The Oak Tree, a result of the members spoken to being very active participants in the scheme.

4.4 Key Findings

The level and nature of participation were key determinants on the influence of CSA on members' ecoliteracy, and could be generally categorised as *peripheral* or *active* involvement. First, in terms of *knowing*, a general understanding of environmental and social issues surrounding food production tended to inform members' decisions to join CSA, therefore many did not believe their membership caused significant change. However, even peripheral involvement in CSA tended to activate awareness of the challenges of food production, thereby reminding members of knowledge otherwise easily forgotten, and contributing to increased commitment towards CSA. Active involvement increased awareness by enabling knowledge exchange in multiple directions. Second, participation in CSA does tend to increase participants' senses of connection to place; however, these are experienced very differently by individuals. Peripherally-involved participants tend to experience connection primarily through the social dimension of place (i.e. the CSA community), whereas actively involved participants experienced a more embedded connection to both physical and social dimensions of place. Third, with reference to *practice,* more holistic enactments of ecoliteracy were observed in the

accounts of CSA participants who were actively involved in CSA. Peripheral involvement tended not to elicit significant change to participants lifestyle, usually due to participants having already made changes prior to their involvement in CSA.

5 Discussion

In this chapter, I present an integrated discussion of the research questions raised in chapter 2 on the role of CSA in influencing participants' ecoliteracy. The three core elements of ecoliteracy are presented and explored in turn, connections between them highlighted. Consideration of CSA as a learning opportunity and the role of community are integrated throughout. Although not originally set out in the research questions, participants' motivations were found to particularly affect participation in CSA, therefore a brief discussion will be presented on this issue. The paper then concludes by discussing suggestions for both CSA practitioners and future research in this area.

5.1 Knowing

> Ecological literacy…implies a broad understanding of how people and societies relate to each other and to natural systems, and how they might do so sustainably (Orr, 1992, p92).

To investigate 'knowing', members were asked to talk about what they understood the differences to be between conventional and CSA farming approaches, and why the differences were important, as this was deemed to be the topic they would most likely encounter through their membership (O'Hara and Stagl, 2002).

5.1.1 Members' understanding of food systems

CSA was perceived as preferential to the mainstream food system for both environmental and socio-political reasons. Members showed a general awareness of the negative environmental impacts of monoculture cropping and chemical use in non-organic farming, including harm to soil and wildlife, which a minority linked to personal health and well-being. The perceived vulnerability of the mainstream food system due to over-reliance on oil and destruction of the environment led one participant to frame CSA in terms of providing "food security" (P8). The costs of long food chains were mentioned by numerous participants, with reference to both the environmental impacts of transportation and social impacts of global markets. Thus, the approach of supermarkets to selling organic food was described as a "con;" whereby an individual who purchases an organic pepper flown from across the globe "believes that they're doing the right thing by buying organic food, but in actual fact they're being manipulated" (P6). This idea of distortion of the truth was echoed in another participant's description of CSA as "getting involved with the *reality* of food growing [emphasis added]" (P8), which included knowing produce would not all grow uniformly and the potential that some might not grow at all.

The fact that the discussion of natural processes was often strongly interlinked with socio-political concerns supports the argument that environmental knowledge and awareness tend to be tied up with a person's broader values (Bamberg, and Möser, 2007; Kollmuss and Agyeman, 2002). Indeed, research on motivations shows that both being informed about food supply systems *and* personal values contribute to the desire to get involved in alternative food networks (Seyfang, 2008). Incorporating values into ecoliteracy has been deemed 'contentious' (Jordan et al., 2009). However, this research would suggest that the two are inextricably linked and, therefore, the issue of "intrusion" of values amongst ecoliteracy writers needs to be broached (*ibid.*, p499). Nevertheless, many participants demonstrated critical awareness of the connections between themselves, society and the environment through the food system – features of ecoliterate thinking (Hampson, 2012) – however, most felt this awareness pre-dated their membership and in fact had been a motivating factor to join CSA. Therefore, the question remains: does participation in CSA *change* members' 'knowing'?

5.1.2 CSA as a learning opportunity: on 'knowing'

Changes in understanding and awareness were implicitly revealed in certain responses, and three main mechanisms were responsible, primarily operating at different levels of involvement. First, communication from the scheme to the members was a crucial means through which both schemes could support members to understand issues at the farms (level 1). Peripherally involved members noted quarterly newsletters, email updates, notices at the vegetable collection site and AGMs as particularly informative. Communicating the causes of crop imperfections or failure was important at Canalside ("we're trying to keep waste to an absolute minimum by communicating to people why things are perhaps not top quality", P1); a strategy that has been praised for generating quicker and more direct feedback loops between scheme and members (O'Hara and Stagl, 2001). It appears to be working, as negative feedback was infrequent. Indeed, many members appreciated the honesty, saying that their membership of Canalside often *reminded* them of information that previously was easily forgotten. One participant recalled the impact of reading emails from Canalside:

> …one of the things it did make me much much more aware of, [is that] you just kind of take your food for granted normally don't you? But because we had *such* a terrible winter, the winter before last, that, that did cause some real problems up on the farm… and then, that's the bit that really does connect you with… thinking, 'those things don't just appear… on the supermarket shelves… by accident.' We are quite reliant on a whole load of things (P5).

Understanding that society is reliant on environmental conditions as indicated here demonstrates an ecologically literate way of thinking (Jordan et al., 2009). Similar findings resulted from the second mechanism: through collecting and using CSA vegetables (level 3). Various participants echoed each other in describing how, as a CSA member, "you become very aware of seasonality", compared to shopping supermarkets where "you completely lose the sense of the *cost* of [non-seasonal vegetables]" (P6). This evidence would support Hayden and Buck's argument that involvement even

at these peripheral levels are "important means" of developing ways of knowing that engage members in a general consciousness-raising (2012, p340), as communication from scheme to members does appear to "[make] it easier to see participation as part of a wider ethical or political position" (Cox et al., 2008, p215).

However, the interesting characteristic of the third mechanism (engaging in farm work, level 5) was that knowledge exchange occurred in *multiple* directions, rather than primarily one-way, from scheme to membership. Farmer and members were all interacting throughout The Oak Tree 'work party', where numerous conversations were had relating to the sustainability of the farm and society at large. Furthermore, by repeatedly experiencing the farm directly, members can improve their *own* understanding, finding out for example, "how difficult some things are to grow, and how easy other things can be" (P8), in a way that is less likely to be forgotten (Millenbah and Millspaugh, 2003). The main grower at The Oak Tree, though clearly very knowledgeable herself, noted the contribution of members in various aspects of the scheme, e.g. in developing the permaculture design for the farm. In general she felt it important to let members "use their education and their intelligence" and bring in "new ideas" (P8), echoing the ideas behind the 'learning society', proposed by Robert Hutchins in 1968:

> In short, we need everyone's creativity and ingenuity. Only by listening to each other and sharing what we know will humankind be capable of evolving truly sustainable societies (Davies, 2009, p216).

Thus, participation in CSA can change members' understanding. On one level by raising their "attunement" to issues involved in growing sustainably (Hayden and Buck, 2012, p339) through communication of the challenges. And on another level by giving them access to a dynamic and evolving social and physical landscape, where they can make sense of their own experiences (Carolan, 2007) and engage in the processes of "shared and reflective learning" described by King (2008, p123) .

5.2 Caring

> …even a thorough knowledge of the facts of life and of the threats to it will not save us in the absence of the feeling of kinship with life of the sort that cannot entirely be put into words (Orr, 1992, p87).

As illustrated by the above quote, determining what affects a person's 'feeling of kinship' is complicated. In considering how CSA influences this element of ecoliteracy, questions explored participants' feelings around their involvement and perceptions of connection to place and nature more generally. As found by Kneafsey et al. (2008), participants expressed a strong caring ethic towards their CSA. However, these were diverse and betrayed the different senses of connection participants perceive with their scheme. The primary influence was the level and nature of

involvement as, again, there was found to be a particular difference between the predominantly peripherally involved and the more actively involved. This section covers how the two broad groups perceived connection to both the social and physical dimensions of place, before considering the influence of farmers and CSA structure on members' experiences.

5.2.1 The peripherally involved

As noted in the previous sub-section, having knowledge about Canalside, using the produce and visiting the farms were major positive experiences for members, and often contributed to a reinforced commitment to the scheme. However, for many participants, experiencing the social side of CSA at levels 3 and 4 changed their feelings from their initial involvement, based more on knowing the scheme aligned with their values. For example, one participant viewed his original membership primarily as "a political cause" (level 1), but discovering the enjoyability of the farm's community increased the value of the scheme to him ("the very fact that it becomes a *nice* place to come…that's a sort of a boon", P6). In this way, the peripherally-involved tended to perceive their connection to CSA primarily in terms of the social dimension of place; evident in accounts of collecting the produce from the farm, described variously as "welcoming," "sociable" and somewhere to "meet new people". Furthermore, as one participant, who highly valued the social events, stated: "the community aspect of it is important to me, and that's what I'd say kind of marks it out as being… special" (P3).

Interestingly, however, even those who spent little time at the farm or engaging in social activities felt positively about the farm's community, just from *knowing it was there* (level 1). Furthermore, CSA can create a sense of community indirectly, even for those very much on the periphery:

> …one of the things they encourage is people to car-share. So…the chap I used to car-share with we take it in turns collecting it… So it creates a kind of, wider community…because, then you drop each other's veg off and have a cup of coffee and a piece of cake and… it kind of spreads that way as well (P5).

Cone and Myhre's distinction between community of *interest* and community of *relationships* is relevant here (2000). They argue that CSA communities need stable, committed relationships built on reciprocity, mutual support and shared rights and responsibilities in order to be sustainable in the long term (*ibid.*). The 'loose' nature of community in some of these accounts suggests the social connections within Canalside are based more on shared interest, therefore represent a potential weakness to Canalside's future (potentially supported by the fact that employees believed voluntary support to be diminishing). However, despite very minimal involvement of some individuals, a strong sense of community 'spirit', nurtured by the scheme, came across overwhelmingly in the accounts of all Canalside members, evidenced by their commitment to the scheme. When asked if there was anything they did not enjoy about their membership, interviewees tended to follow their initial answer

with an explanation of why it did not reduce their commitment to the scheme, or even reinforced it, e.g. the tedium of "processing muddy vegetables" was outweighed by feeling supportive to the scheme after what had been a "difficult" growing season (P3). Furthermore, the farm community is "very interconnected" (P1) with other related networks in the area, including the Local Exchange and Trading System, Transition Towns group, a seasonal women's group and a community café. Therefore, the farm forms part of a larger network that may offer support in ways this research did not uncover.

In terms of connection to the farm and nature, some CSA-related activities were cited, and Canalside's own research found that some members most valued simply "stepping out of the yurt [after collecting their vegetables] and just enjoying the view" (P1). However, more often, feelings of connection to nature were experienced through activities outside of the farm, e.g. walking, hiking, camping and working in natural environments. The range of activities reported suggests participants experience connections to nature in very different ways, a finding supported by Schroeder (2007). In particular, some accounts echo the cultural idea that "nature is a place where we are not" (Lippard, 1997, p12), rather than what surrounds us completely and *requires* our active engagement if we are to develop sustainable ways of living (Cone and Myhre, 2002), perhaps explaining why some people are not more involved in CSA. Nevertheless, the fact that all wished to remain a shareholder suggests it is not always necessary for members to spend significant amounts of time at their CSA farm to feel connected to the project, as experiences of other natural environments generate feelings of connection to nature, which in turn contribute to members' motivations to support the project. To illustrate, one member who never visited the farm still valued the place immensely, because "it's like an outward manifestation of my internal beliefs" (P4).

5.2.2 The actively involved

Many positive feelings were associated being involved in the growing aspect of CSA. One participant enjoyed feeling a 'sense of ownership' from having worked hard in the scheme. Connections to the farm and to nature were felt by some as a spiritual experience or positive for personal well-being ("I find it very calming and soothing and… good for the brain", P8), supporting the notion that CSA can heighten members' "sense of moral and spiritual well-being" (Cone and Myhre, 2000, p196). One participant felt he had seen reconnection with nature in other members, albeit sometimes unintentionally: 'some don't intend it or realise it but they are gaining skills and understanding' [field notes]. These participants expressed more *embedded* relationships in place, to both the farm's physical and social dimensions, as described by Carolan (2007). As a working natural environment, the farm can bring together people who may not normally interact, as the farmer explains: "It's a great leveller…'cause everybody's covered in mud here you don't know if they're rich or poor and people don't tend to go on about it" (P7). Thus, for many, the farm was a central site of connection, as one member of The Oak Tree explained:

> It's very stress-free… good to be out in the open air, and enjoying having your feet on the ground… seeing the plants grow, seeing the problems and… really meeting the other people. I've…had some really good conversations and connections up there, and a real feeling of community and working together for a common purpose (P8).

There was a strong sense of community development at The Oak Tree, as the grower explained: "as communities everywhere we seem to get to know each other and provide other sorts of support" (P7). Examples of such support within The Oak Tree included sharing of physical resources (e.g. baby clothes), information and advice (e.g. on installing wood burner stoves). The fact that much of this was not directly related to the CSA but to individuals' personal lives suggests that the scheme is good at generating meaningful relationships between members beyond the basis of shared interest. Indeed, the main grower recalled that many strong friendships had developed through the scheme, sometimes across ordinarily-divisive social boundaries. Embedded connections to place also emerged at Canalside, one participant describing feeling empowered from having "a real sense of involvement in the community and connection to lots of different things", most of which stemmed from the farm. However, as this former 'workshare' member and now employee noted, hers is probably a more "*extreme* case" due to her high level of participation (P1). Nevertheless, it would appear that active participation is likely to increase the potential for the community to develop from one based on shared *interests* to being based on more stable and committed *relationships* (Cone and Myhre, 2000), involving greater – a finding supported by Carolan (2007) and O'Hara and Stagl (2002).

5.2.3 Additional influences on 'caring'

The role of interpersonal and organisational approaches

Important additional influences on the experience of 'community' amongst CSA members emerged from the research. As noted by Hayden and Buck, the interpersonal approach of key individuals in CSA can be an important influence (2012). At The Oak Tree, though the CSA is now run by three directors, the founder remains a central linchpin in the organisation, whose hard work and commitment continues to be a source of inspiration for members:

> [The founder has] been really good at establishing it and developing it and nurturing it... I think that's one of the biggest reasons for why it does work (P8).

The founder's interpersonal approach undoubtedly contributes to this feeling, which was echoed by many members. During the interview, the founder expressed repeated appreciation for the support of the members, often citing specific people for their help on particular projects and showing general gratitude for members' continued support, which she also communicates to members:

> The Oak Tree Veg CSA probably only avoided going bankrupt following last year's dreadful harvest thanks to our members sticking with us. If we had been an "ordinary" market garden, we

> would probably not still be here. I personally feel incredibly grateful to everyone for sticking with us (message to members via social media, The Oak Tree, 2013).

Although informal, the participatory approach at The Oak Tree is also crucial. The importance of taking members' feelings and concerns into account is demonstrated by website forum titles such as, "How are you feeling about the poor harvest?" (The Oak Tree, NDc), and is evident in the relaxed and flexible way 'work parties' are organised.

Similarly, the two interviewed employees of Canalside both expressed a deep sense of care and commitment to the project and its members. The farmer felt strongly the responsibility to grow produce efficiently for members, appreciating their crucial role in the scheme ("[It] definitely can be a very very lonely place, running a business when, when you're relying on people just to buy things, without having that extra relationship", P2). The farmer felt it important for members to be able to meet and talk to him at social events so they would know that he was 'normal' and not irritated that they did not come to the farm more often. This implies that farm-member connections are not as close as they could be, perhaps in part due to the size of the project, which means that there are simply *more* members to know compared to a smaller CSA. Nevertheless, members repeatedly described the organising team as open and friendly. Although employees are aware of challenges they face in terms of encouraging more members to come to the farm ("[members are] not really sure…how they can use the space", P1), this awareness was derived from the feedback mechanism that is the steering group. Therefore, both case studies highlight the importance of participatory organisational approaches in establishing community, similarly advocated by researchers on CSA (Hayden and Buck, 2012).

5.3 Practice

> [An ecologically literate] person would also have the practical competence required to act on the basis of knowledge and feeling (Orr, 1992, p92).

The above quote illustrates Orr's contention that pro-sustainability behaviour (or *practice*) is dependent on having a particular type and/or level of skill or ability. In CSA research, wider lifestyle change has been attributed to the "graduation effect" (Cox et al., 2008, p212). However, mechanisms identified to influence this usually focus on changes in participants' *thinking* and *caring*, therefore the role of 'practical competence' has been little discussed.

Orr argues that experiential learning in natural environments is crucial for developing the practical competence to lead a sustainable lifestyle (1992). The fact that most participants (particularly the least involved in Canalside CSA) reported few changes to the sustainability of their lifestyles would appear to support this notion. For example, the same participant who understood that "we are quite reliant on a whole load of things" and felt "absolutely…committed" did not think his membership had

influenced his lifestyle more generally, e.g. on the subject of changing to a purely renewable energy provider he said, "sometimes I think 'Yeah I ought to do… things like energy' because I know they're keen on that sort of thing as well, but, I haven't got round to [it]" (P5). Therefore, 'knowing' and 'caring' elements of ecoliteracy the assertion that awareness and deepened commitments will lead to an "imbuing [of] everyday decision-making with the well-being of the greater system" (Hayden and Buck, 2012, p340); because, although all participants exhibited, they did not all make connections with that part of their life with their wider consumption; which suggests of the existence of the attitude-behaviour gap in CSA.

In other cases, however, lack of lifestyle change was due to significant changes being made *prior* to joining CSA (e.g. "I've been living like that for such a long time, that I don't quite remember how those changes came about", P4). Interestingly, while this participant was, for the most part, not involved in Canalside beyond level 2, she was very active in other communities, where she engaged in many constructive social and practical activities in natural environments. This potentially lends support to Orr's argument that learning skills for sustainable stewardship is an important element for supporting pro-sustainability behaviour (1992); however without more detail it is difficult to identify causality in this case. Nevertheless, actively involved members tended to experience greater lifestyle change, examples and explanations for which will be discussed next.

5.3.1 CSA as a learning opportunity: on 'practice'

Both case study CSAs are active learning environments, which offer members the opportunity to learn alongside the growers, contribute ideas, and gain skills and experience in sustainable stewardship of the environment. The main grower at The Oak Tree felt the scheme could benefit both one's personal development (e.g. gaining confidence, professional skills) and self-sufficiency (e.g. wild food harvesting). Although education was not yet a formal provision, the scheme aspires to offer more courses in the future, through utilising the collective knowledge base. Furthermore, 'experiential learning' was evident during the work party, as members learned new and practised existing skills (e.g. tending chickens and scything, Figure 5). Furthermore, learning of this sort was two-way, as the main grower at The Oak Tree explained:

> I wouldn't have known a lot of things like looking after geese and things like that. But one of our members was a smallholder, he's now an environmental consultant… …and basically he showed me what to do.

Figure 5. Whetting the scythe (Researcher's own, 2012)

Thus, the founder's approach was to "make it possible for people to learn from each other" (P7), through enabling people to take responsibility for particular activities whilst providing the necessary support, an approach advocated elsewhere in the literature (Hayden and Buck, 2012). Crucially, by engaging participants in greater "problem solving, critical reflection, discussion and decision-making", their practical ability to orient their lifestyles towards sustainability will be improved (Millenbah and Millspaugh, 2003, p127). However, while members of The Oak Tree expressed the desire to learn new knowledge and skills, there were contrasting perspectives between those who found responsibility rewarding:

> …we have been looking after the tomatoes and weeding the polytunnels lately. We are finding that there is more of a sense of achievement in knowing what has been done or needs doing and gives us the push to go and finish the job if we know that it is not done until we do it. (The Oak Tree website)

And those who prefer someone else to have responsibility:

> …the enjoyment of growing your own food without the hassle of having an allotment. Somebody else does the hard work and thinking about it, we just turn up and do the grunt work (The Oak Tree website).

Thus, people respond differently to the opportunities CSA provides, which the main grower and coordinator was aware of: "some people are established in careers, they're not interested in following this other stuff up" (P7). Given this recognition, the approach at The Oak Tree seems to revolve around flexibility and choice:

> There was a diversity of activities throughout the day that members could opt in to… Members were under no obligation to do something they did not want to do, and could choose whether they wanted to work in groups, or on their own [field notes].

Experiences of Canalside as a learning opportunity were more mixed. One participant, who had volunteered earlier in her membership, thought she had not learned many skills as the work was "pretty basic stuff". Millenbah and Millspaugh point out that using the label 'experiential learning' does not mean "every experience promotes educational growth" (2003, p128); therefore, it may simply be that the nature of the work at Canalside is less conductive to learning practical skills, perhaps because the size of the farm means individual activities take longer and are more repetitive, or perhaps due to lower interaction between volunteers. However, given the lack of information from past and present volunteers it is not possible to give a conclusive answer on this point. Another limitation was the inflexibility of the volunteering sessions, noted by several participants, which acted as a barrier to participation. Becoming a 'workshare' member had enabled one member to be more actively involved, as it involves a more flexible agreement, but only a limited number of 'workshare' spaces are available. Therefore, strategies to enable more flexible access to CSA farms would appear to be beneficial for encouraging participation.

Ultimately, however, most participants did not consider Canalside an opportunity to learn new skills or about farming before joining, and tended to perceived the scheme as a learning opportunity for *others*, particularly members who volunteer and children who visit the scheme, either with parents or as part of the Education Project Canalside runs with local schools. This relates to the influence of motivation, which will be discussed more fully in section 5.4.

5.3.2 The effect of CSA community on practice

The Oak Tree's community enabled members to practise more sustainable lifestyles in two main ways. First, by connecting like-minded individuals in a practical environment, members were able to share information advice, experience; effectively situating members "within networks and relationships" that enabled change in daily practices (Cox et al., 2008, p216). For example, helping to organise a local sustainable food initiative (initiated by the founder of The Oak Tree) enabled one member to "almost [stop] going to supermarkets" (P8). Second, evidence suggested that members of The Oak Tree were involved in a collective redefinition of their 'cultural rules' (Middlemiss, 2011) and 'unlearning' of old habits (Maiteny, 2002). This had the effect of creating a social environment

supportive of alternative lifestyles and practices, where new norms could emerge (Bamberg, and Möser, 2007), such as buying clothes from charity shops and using old washing up water to flush the toilet. As one participant described it, with "like-minded people around… you just feel less of a freak" (P8). These accounts also demonstrate that members are moving away from using resources supplied for them towards generating their own resources, e.g. "growing their own food, keeping chickens, compost toilets, harvesting rainwater, installing wood burner stoves" [field notes], demonstrating some of the key practices deemed necessary for a sustainable lifestyle, including reducing dependency on external inputs, taking advantage of nature's free services and using locally available resources (Orr, 1992). These members, therefore, are using their ecological literacy to source their material and spiritual needs; exemplifying the mutually nurturing relationship between the inhabitant and place (Wooltorton, 2006). This is not to say that these members practising more ecoliterate lifestyles would not have done so without The Oak Tree, but that the CSA is an *enabling* environment, on multiple levels.

This discussion shows that the notion of gaining 'practical competence' through experiential learning is too narrow to encompass all of the contributing factors to behaviour change beyond CSA; in particular, the role of a supportive community. However, it does highlight the importance of generating a sense of empowerment through improving one's practical ability; therefore this research supports the argument that greater member involvement in coordinating the CSA and working on the land is an effective strategy to "engender the holistic community paragon of CSA" (Hayden and Buck, 2012, p340). Orr did note the important need to "rebuild strong, participatory communities" in order to create a more sustainable future (1992, page). CSA appears to be one way in which this can be achieved, through establishing embedded connections between like-minded individuals in a specific locality; therefore, can in some ways be characterised as both community-supported agriculture and 'agriculture-supported community'.

5.4 The influence of motivation

Motivation emerged as key determinant on members' participation, therefore deserved particular mention. As noted above, many members already had the 'environmental ideology' characteristic of CSA members in previous research prior to joining (Hayden and Buck, 2012), as a result of alignment between awareness of environmental issues and existing values. However, reported motivations were wide-ranging and diverse, reflecting personal, environmental, social, political, economic and cultural concerns. Again, this echoes previous findings that motivations of CSA members are often multi-layered and complex, targeting both the practical and ideological (Cox et al., 2008); the self-interested and selfless (Hinrichs, 2000). In terms of ecoliteracy, the interesting observation here is the influence of members' motivations on participation.

At Canalside, where active involvement of members is more optional, perceived barriers relating to lack of time or energy prevented members taking part. Some prioritised their children or other community groups, others simply felt too "busy and knackered" from working full- time (P3). Indeed, some join the scheme with little intention of taking part at that level:

> I think the *reason* we both wanted to do the farm is because you get all that benefit of almost home-grown really good quality, really tasty food and you don't have to… put too much effort in [laughing]… just the direct debit (P5).

While this perspective indicates a willingness to change one behaviour, others perceived CSA as part of broader lifestyle change. For example, having spent some time in a rural area of a foreign country, one participant returned feeling as if "*our* culture has got it *all* wrong". Criticising the "supermarket culture" for 'divorcing' society from where and how food is produced, she expressed the desire to be "much more active in making my own food" (P1). Interestingly, it *was* recognised by peripherally-involved Canalside members that those who "go up and do a bit more with the weeding, and the planting, and helping" probably experience more a connection to the place, but this did not translate into a motivation to get more involved themselves. At Canalside, employees were keenly aware of this, the farmer stating: "I think it only makes a big difference in a person's life in just a few cases. But I think it makes a small difference in, probably almost every member we have" (P2).

As the ways people care about and construct meaning from their involvement in CSA are diverse, CSAs have been conceptualised as "attempts to engage with ethical issues in the food system, albeit incompletely and imperfectly" (Charles, 2011, p.362). Indeed, almost all of these members expressed a degree of regret or guilt over their lack of involvement, indicated implicitly through tone of voice or sighing during the interview, and explicitly through comments such as "I would like to be more involved…but I *can't* be" (P6). Research has shown that conflicting ideologies can arise *within* individuals, whose participation in CSA may only reflect a particular set of interests that in fact conflict with other important interests and lifestyle choices (Kneafsey et al., 2008). For example, one member "theoretically" wished to be more involved, but prioritised a different community she belonged to in order to be with those she felt were "most nourishing" for her well-being (P4).

In comparison, motivation to be involved in growing food was frequently mentioned in conversation with members of The Oak Tree. One participant's statement that "being a member is like being the most successful allotment holder you can possibly imagine" implies that growing food is something they wanted to do anyway (The Oak Tree, NDd). Thus, as Carolan points out:

> "The transformational potential of these spaces has to therefore be slightly tempered by the possibility that those most changed by them may have been more open to self-conversion to begin with" (2007, p1273).

These motivations indicate very different perceptions of the purpose of joining CSA, and the implications are potentially very important. For example, those already engaged in practical community-based initiatives and learning sustainable stewardship skills outside of the CSA (e.g. the Permaculture Design Course), brought their own knowledge and skills to CSA. Whereas, someone unengaged in practical skills-based opportunities may be unsure of how they can contribute or lack confidence, as was noted by one member of Canalside. However, motivations are not fixed aspects of members identities, therefore should be seen as open to transformation (Holloway et al., 2007). Previous research has shown that CSA can influence members' motivations (Cox et al., 2008; O'Hara and Stagl, 2002; Wells et al., 1999). However, how effective CSA is at increasing members' motivations *specifically* to get more involved is less clear. As this study shows level of participation is a key determinant in influencing members' ecoliteracy, this would be a fruitful area of research. This discussion on motivation also highlights a limitation in the explanatory power of ecological literacy as a concept. Indeed, a number of other determinants on human behaviour were evident in the results and could have been covered in more depth, both internal and external factors (Kollmuss and Agyeman, 2002). However, as Kollmuss and Agyeman explain, "the question of what shapes pro-environmental behavior [*sic*] is such a complex one that it cannot be visualized in one single framework or diagram" (2002, p248). Furthermore, while it may not capture all influences, ecoliteracy can shed useful insights into how the processes and practices within communities influence participants' experiences of connection to place – the subject of the next chapter.

5.5 Maximising Potential

This research has shown that, in some ways, CSA is a model of food production that naturally lends itself to providing opportunities for experiential learning. However, CSA schemes operate in difficult economic and environmental conditions, therefore, need to negotiate a balance between broader CSA goals and keeping the scheme in operation (Charles, 2011). Important variables affecting CSAs potential to "open up spaces for ecoliteracy to develop" (King, 2008, p123) have been pointed to throughout this discussion; key recommendations are summarised as follows. At the very least, communication between CSA and members is vitally important to support members to understand the challenges farmers are facing and nurture an 'ethic of care' between all participants of CSA (Cox et al., 2008; Kneafsey et al., 2008). Therefore, creating multiple platforms and opportunities for communication (and ideally interaction) is recommended. Use of participatory approaches that value multi-directional communication can further enhance ecoliteracy, even if employed on an informal basis. By harnessing the collective knowledge base, drawing inspiration from the ideas of many and sharing the rewards equitably, CSA can achieve transformative community development. Supporting members to take responsibility for activities can improve their sense of empowerment and make the workload of the farmer more manageable.

The structural and policy design of CSA should be carefully considered if developing ecolitercy is a high priority. Agreements that involve an obligation for members to volunteer on the land should be considered, as members' expectations on entering into CSA influence their motivation and participation as a result. As far as possible, a flexible approach to member access on the farm is advocated, in order to maximise opportunities for members to gain experience on the farm. Finally, the size of a CSA scheme should be considered as a potential influence. By scaling up, the management of the farm becomes more complex and it may become less easy to devolve responsibility and creative input to members. In addition, if activities are very simple and repetitive, the value (in terms of gaining skills) that members can derive from them is reduced. In this sense, there appears to be a choice between quantitative change (the number of people influenced) and qualitative change (the depth of influence). Both approaches have advantages, and either might be more applicable depending on the needs of both the scheme and members.

6 Conclusion

In summary, the nature and level of participation in CSA is often highly variable, and significantly affects the influence of CSA on members' ecological literacy. Peripheral involvement can influence the 'knowing' and 'caring' elements of ecoliteracy, by raising awareness of environmental issues and creating a sense of community. However, more holistic enactments of ecoliteracy tend to develop through active participation. Active involvement tends to foster embedded connections to place, as participants' lived experiences contribute to the community's shared history (and possible futures) within a specific locality. In addition, the farm's physical environment can provide a safe space in which the community can revise cultural rules and co-create their own norms, thereby allowing pro-sustainability lifestyles to become the norm (Middlemiss, 2011).

By enabling members to learn, practise and apply their knowledge and skills towards a productive end, CSA can be considered a learning opportunity. Again, active participation is important, as through direct experience on the farm, CSA members can discover new knowledge and understanding *for themselves*, rather than via the more passive process of receiving it from the scheme (Carolan, 2007), although the latter is still beneficial to a lesser extent (Hayden and Buck, 2012). Furthermore, learning in this context does not have to be a formal provision. Participatory approaches are conducive to informal learning, as greater interaction allows farmers and members to learn from each other, enabling CSA communities to develop their capacity collectively. However, the role of the farmer and other employees remains crucial, and can have significant consequences on members' experiences of the farm as a learning opportunity and as a community more generally (Hayden and Buck, 2012). On-going consideration of strategies to enhance mutually supportive (ecologically literate) relationships between CSA and members is, therefore, important. More widely and to refer back to the problem set out at the beginning of this paper, this research suggests policy makers should

recognise the value of ecological literacy in building a sustainable society and provide greater support for initiatives and institutions that can foster ecological literacy in participants.

6.2 Further Work

This research has begun the process of understanding what the processes of ecoliteracy involve, by considering the ways in which CSA members *know*, *feel* and *act* in relation to their CSA membership and wider lifestyle. Active participation and participatory approaches have been shown to be important influences on members' practice in this study. However, there remains much scope to improve understanding on this area, so as to better advise CSA practitioners on how to engage members (existing and potential) in this way. Further research could develop understanding of how different structures, processes and practices within CSA are more or less conducive to the development of holistic ecoliteracy. For example, investigation on the role of 'responsibility' on empowerment and ecoliteracy would be useful. Similarly, useful research could focus on social relationships within CSA: on how are formed, under what circumstances they flourish and how they contribute to the development of ecoliteracy. Further research would also be beneficial to address the limitations of this study, which relate particularly to the short time-scale of the project and the consequential low level of participation of members. A fully ethnographic, long-term research project could build on the findings here to reveal richer insights into the relationship between participation and ecoliteracy in CSA. In-depth consideration of the implications of external and structural influences on the development of ecoliteracy, e.g. economic, physical, social and institutional constraints (Kollmuss and Agyeman, 2002), was limited by the scope of this study, but would be an important avenue for future research. Finally, equally useful would be closer investigation on whether and how CSA can increase members' motivation to participate more actively, thereby exploring what the opportunities and barriers are for overcoming instances of the attitude-behaviour gap.

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Appendices

Appendix 1 Example transcript [unavailable]

Appendix 2 Interview questions framework (Members' example)

Key: Subject headings; *Main questions;* *prompt questions*

Question sheet for member		**Ecological Literacy**			
	General CSA (factual)	**Caring (emotional)**	**Knowing (intellectual)**	**Practical competence (action)**	**Context**
1	History of involvement *Can you tell me about how you came to be involved in xxx CSA?*	Motivation to support CSA *Can you tell me about why you joined the CSA originally?* *What is it about CSA that you feel is important to support?*	Understanding of food production relating to global environmental problems *What is different about how food is produced in CSAs compared to other methods of food production?* *Why do you think it is important to grow food in this way?*	*Did you consider membership of a CSA an opportunity to learn about food production systems and possibly to gain practical skills?*	*Can you think of anything else that influenced you original involvement in CSA?* *e.g. influence of friends/family*
2	Involvement now *What is the nature of your involvement in xxx CSA?* - *Activities* - *Time spent on the land / at home* - *Satisfaction*	Feelings about participating in the CSA *What do you enjoy about taking part in the CSA?* *Is there anything you don't enjoy about taking part in the CSA?* *Do you want to remain a member of xxx CSA? Why?*	Understanding of natural systems (key ecological concepts, etc.) *Do you think your membership of xxx CSA has improved your understanding of how food is produced?*	Examining CSA as a learning opportunity *Thinking about the activities you have taken part in on the farm, are there any practical 'farming' skills you have learned from taking part in the CSA? For example, skills to do with planting vegetables, composting, pest control, etc.?* *Is there anything you have more confidence in your ability to do?* *Have you gained any other skills from being a member?* *e.g. cooking unusual food, wild*	Reinforcing and constraining influences on involvement *Is there anything else that has affected your involvement in the CSA? (Either positively or negatively?)*

				food harvesting, etc.?	
3	Connection to place (or people) *Some people consider CSA a particularly interesting model for growing food because it can offer members the opportunity to 'reconnect' with nature. Is this something you have experienced?*	Importance of place *What is it you value about spending time on the farm? (if anything)* *What do you value about your membership of xxx CSA?*	Understanding of the place - History / legacy - Its conditions, needs - Farm elements *Do you consider CSA an opportunity to learn about nature?* *Is this something you are interested in?*	Skills to respond to environmental needs / maintain farm elements *(similar to above)*	Other factors affection connection to place / nature *How / where else do you feel connected to nature?*
4	'Community' *I'd like now to talk about the 'community' aspects of CSA…*	Importance of 'community' element of CSA - positives - negatives *What does 'community' mean to you?* *Does the 'community' element of CSA relate to this?*	*We've talked a bit about things you have learned through spending time on the farm and using the produce, but have you learned anything interesting or useful from your fellow members of xxx CSA?*	*Have you learned any new skills from your fellow members?*	Factors influencing 'community' element *From your experience, do you feel the 'community support' part of the CSA works well? … Could it be improved? (If so) have you any ideas for how that could be achieved?*
5	Life beyond CSA ('graduation effect') *I'd like to ask you a bit about whether being a member of xxx CSA has influenced your life more generally…*	*…has it changed the way you think or feel about…* - *your consumption?* - *your lifestyle?*	Critical understanding of behaviour in other contexts *…so, since CSA are partly about providing a way for people to buy food more sustainably, has being a member of the CSA made you think about your consumption habits more generally?* *Is there anything you have thought about changing?*	Ability to change behaviour *Do you feel you have the skills needed to make changes to x and y?* Application of learned skills *Have you used any of the skills you learned / saw demonstrated at the CSA elsewhere?*	Other factors / constraints affecting behaviour change *Is there anything affecting your ability to change these other aspects of your lifestyle?* - *Time* - *Money* - *Clashes with other values / commitments* - *Lack of skills*