Communities of Practice and social learning in associations of organic farmers in Wales

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Abstract: *This paper applies a Community of Practice (CoP) approach to social learning processes among farmers, and considers how, or whether, this approach may be useful for state extension services. The approach is applied to conventional family farmers who have converted to organic farming, and to farmer associations differentiated in terms of their structure, aims, and objectives. The paper also illustrates how the CoP approach may help to categorise organic farmers based on the CoP concept of Joint Enterprise. The CoP framework has been used in differing circumstances to attempt to extract value from extant social capital, to manage dispersed expertise, and to enable more efficient and coherent development. Such manipulation of CoPs may be criticised for ignoring the organic nature of CoPs, and for departing from the original conception of CoPs by formalizing what are self-organising structures that generate their own knowledge in sympathy with internal community definition and identity. A CoP framework applied to processes of social learning within relatively unstructured and dispersed communities, such as those of organic farmers, places a focus on the intangible definition and benefits of community development and as such may be said to be more in sympathy with the original conception of CoP. However, aspects of the knowledge management approach may be useful in the use of the CoP model by extension agencies. In any case extension approaches and processes may be facilitated by regarding farmers as de-facto members of communities of practice and by understanding how these communities form and develop.*

Keywords: *Community of Practice; Organic Farmers, Extension*

Introduction

The effectiveness of extension systems in agriculture has been questioned on the basis of a perceived failure to effect desired changes and improvements in output and/or environmental impacts (e.g. Ison and Russell, 2000; Vanclay and Lawrence, 1994; Buttel et al 1990). Reservations about effectiveness have in turn translated into criticisms about the legitimacy of extension approaches that conceive of extension primarily in terms of knowledge transfer (e.g. Rivera and Sulaiman, 2009; Warner, 2008; Leeuwis and Ban, 2004; Garforth et al, 2003) and have had consequent effects on how agricultural knowledge creation by farmers, and farmer learning in agriculture, are characterised. Subsequent approaches have shifted the focus of knowledge production and learning, toward more social and participatory perspectives (e.g. Mahon et al, 2010), where the agency and practices of the farmer (as learner) are more explicitly recognised.

Approaches to farmer knowledge and learning have also been influenced by policy processes that integrate agriculture more intimately within a wider context of resource management and broadly-based rural development. This has been reflected in major reviews such as the EU supported Learning in European Agricultural and Rural Networks (LEARN) project (Cerf et al, 2000); the Social Learning for Integrated Management and sustainable use of water at catchment scale (SLIM) project (Blackmore et al, 2007); the wide ranging assessment of agricultural knowledge systems produced by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report (IAASTD, 2009); and the continuing Rural Economy and Land Use (RELU) research programme in the UK (e.g. Winter and Lobley, 2009), following longer established studies of the development of agricultural knowledge systems in poor countries (e.g. Pretty, 1995).

These studies emphasise the place of farmers within extensive networks of knowledge, recognise the socially mediated generation and use of agricultural knowledge, and shift research interest toward processes that counteract, to some extent, top-down and linear models of knowledge production and learning. Theories of social learning have thus become prominent in attempts to understand agricultural knowledge production and farmer learning, and have been applied particularly in relation to sustainable agriculture, and in development studies (as in the reports and studies referenced above and e.g. Schneider et al, 2009; Warner, 2008; Altieri, 2004; Leeuwis and Ban, 2004; Röling and Wagemakers, 2000; Röling and Jiggins, 1998).

One way of modelling and operationalising features of social learning that is intimately related to social structure (and to situated practice) is by means of the Communities of Practice (CoP) framework (Lave and Wenger, 1991). To date direct application of the CoP framework in agriculture has been limited (see for example O'Kane et al, 2008), with some application to studies of land-based resource management (e.g. van Buuren and Edelenbos, 2006). These are studies of relatively well defined groups of farmers and of practices developed for well defined objectives. As such they identify groups of farmers (and other actors) who may be described in terms related to community and practice that are employed for CoPs. In this paper the CoP framework is examined in relation to professional family farmers who are shown not to belong to well defined groups, and for whom the objectives (conversion to organic farming) of their learning and knowledge production (including new practices) are subject to competing definition and disagreement.

The paper proceeds with a brief overview of Social Learning theories and their relevance to the CoP framework, which is described with reference to its possible application to groups of farmers. The paper considers the CoP model as a way of exploring self-organising social learning processes among farmers, but also as a management tool that may be of interest to policymakers concerned with improving extension service.

The examples used in later sections of the paper are derived from case studies of three groups of farmers who are associated by their experiences of conversion from conventional to organic farming practices. Each study offers explorations of evolving social learning processes undertaken by farmers, and the paper critically examines the use of the CoP model in these contexts. The central research question associated with this exploration, therefore, is whether or not the associations of farmers examined in this paper may be described in terms of CoPs, and whether this model can be an effective way of understanding how farmers learn about organic farming practices.

Social Learning theories and Communities of Practice

Social learning includes both behavioural and cognitive processes, and approaches to social learning that involve communal processes lie somewhere between the extremes of behavioural and rational-actor models (see for example Bandura, 1977; Bala and Goyal, 1998 respectively). Social learning can be seen to be both a process of conformation to already known and socially acceptable roles and practice ('learning to fit'), as well as being a creative process whereby new knowledge is generated within, and facilitated by, a social structure. Behavioural learning is a pre-requisite to participating in social learning processes and helps to align the identity of the learner with that of the group. A measure of communal identity helps to create conditions for building trust, exchange relationships, and commitment to the group, but also creates bounds for the rationality of individual actors (Lindkvist, 2005).

In the kind of studies referred to in the introductory section above, social learning is not so much considered in the sense of imitation and reproduction (as in Bandura,1977), but as learning by a collective that may engage in concerted action (Ison, 2007). This leads to considering active (learning) processes that are employed in defining, constructing, and seeking change and

improvement rather than in reproducing known or existing states (e.g. see Pereira-Querol and Seppänen, 2009; Blackmore, 2007; Steyaert and Jiggins, 2007; Tabara and Pahl-Wostl, 2007; Vanclay, 2004). This approach may also involve explicit attempts at co-ordination such as, for example, collaborative learning (e.g. Källström and Ljung; 2005) and participatory social learning (e.g. Mahon et al, 2010; Warner, 2008; Grudens-Schuck, 2000). Viewed from these perspectives knowledge is built from a number of contributing sources; learners construct their understanding by using and contributing to a range of common resources; and importantly, learn through active participation in practice.

The focus in the Communities of Practice (CoP) model of social learning is specifically on the interaction between knowledge, practice and social structures. Learning through a CoP is viewed primarily as a process of social construction and knowledge sharing, rather than a process of knowledge transfer. It is a decentred process in the sense that knowledge is found in, and built from, practice and *'…mastery resides not in the master but in the organisation of the community of practice of which the master is a part'* (Lave and Wenger, 1991, p. 94).

Expression of knowledge, particularly in the form of practice in a CoP, engages with ideas of community and identity and with their roles as binding and knowledge sharing structures (Lave and Wenger, 1991; Brown and Duguid, 1991; Wenger, 1998). By virtue of membership of a CoP an individual can access and contribute to a collective identity, which itself becomes an important component of communal knowledge. Learning within a CoP, hence, includes acquiring the social capital to operate successfully within a particular community[1].

It may be said that a community consists of a collection of individuals that are oriented to each other and share or refer their activities (and practice) to norms of the collective. Generally the term is applied to social groupings whose memberships exhibit a relational proximity in some form or other. Amin and Cohendet (2004), following Allen (2000), suggest that communities can be composed of people with similar enthusiasms, interests and purpose, and these types of communities are said to possess internalised 'shared understandings', and 'tacit and codified understandings' (Allen, 2000, p. 28). These 'tacit and codified understandings' are the bonds assumed by individuals belonging to the community, and are recognised as signifiers of identity. Communal identity in turn increases commitment to the community easing the process of accumulating tacit knowledge and 'shared understandings'.

However, having been originally concerned with providing an account of learning as socialisation into existing practices and beliefs (Edwards, 2005) and a focus on apprenticeship (Unwin, 2007), the CoP approach, has been criticised for failing to account for how new knowledge and innovation may be produced (Swan et al, 2002). If CoPs are not to be inward looking and self-referential, engaged only in reproduction, internal coherence has to be balanced with openness to new knowledge and practice, both by interactions with other CoP and through processes of knowledge generation and renewal (Brown and Duguid, 2001).

Internal renewal for a CoP may come about as new practices are developed, and through the influence of new entrants with different knowledge sets and life experiences, who may be more capable of assimilating and developing new practices than 'old timers' (James, 2007). The membership and constitution of a CoP is, thus, not static as individuals and roles change over time. The movement of individuals into and out of the CoP contributes to the community's capacity to operate in more than one milieu, which may bind the CoP to larger configurations (constellations of CoPs in the words of Wenger, 2000, p229) and allows for co-evolution of the CoP with its environment. Interactions with other CoP may come about through the multiple affinities and identities that individual members hold (e.g. Delemarle and Larédo, 2008), and in this regard diversity among members is as important as the degree of commonality that CoP contain. The boundaries of CoP, therefore, need not to be strictly defined but be regarded as porous structures merging with other CoP as individual members vary their degree of

[1] A process described in Lave and Wenger (1991) as 'enculturation'.

involvement, and new knowledge, influences, and practice migrate into and out of the community. This view of a CoP suggests that it may be regarded as an amorphous entity and in which community members may be dispersed, both in spatial and relational terms.

An amorphous CoP with porous boundaries and dispersed membership, however, seems to differ appreciably from the original conceptions by Lave and Wenger (1991). Whilst the model has been developed and its scope and application enlarged since its first appearance, the degree of elasticity that the model should tolerate is problematic. A central point of debate is membership dispersal (relationally and spatially) and the extent to which it may be accommodated in a CoP before the term 'community' loses its operational significance. Hence, any application of the model requires a careful definition of what constitutes a 'community' (Amin and Roberts, 2008; Lindkvist, 2005).

Whilst community attributes are derived from the behaviours of individuals oriented to each other, the relationship between each part of the term 'Community of Practice' is more intimate than simply as a descriptor for an aggregation of individuals involved in the same practice. The relationship requires a constant and detailed interaction between the formation and maintenance of social bonds and the activities that serve to create a communal identity. Hence, the CoP concept developed by Wenger employs an approach based explicitly on activity, and Wenger relates 'practice' to doing[2].

The practice of a CoP is also seen to be in intimate interactive relation to the communal form and provides it with its coherence. 'Practice', as used by Wenger (1998), includes purposeful action and/or knowing, manual and/or mental activity, the practical and/or the theoretical, and distinguishes a community of practice from community based on other attributes. Three dimensions are ascribed to cement the relationship, and are all required to be present in order to distinguish a CoP from other community types. The three dimensions comprise of 'Mutual Engagement', 'Shared Repertoire', and 'Joint Enterprise', each conveying the characteristics and definitions of practice and community as outlined in the preceding discussion. In the following section the three dimensions are employed in examining social learning processes apparent within three associations or groups of farmers who have converted to organic farming. In so doing the groups are critically studied in terms of the co-evolution of community and practice, and the applicability of the CoP framework to social learning in this context is explored.

Applying the CoP framework to farmers learning about Organic Farming

The study of social learning in this paper is drawn from work with associations of organic farmers in Wales[3]. Included in the study are farmers who converted from running conventional family farms, and are professionally committed, full-time and long term farmers. Three groups of farmers, denoted as Groups A, B and C, were structured in differing ways and exhibit (in group terms) differing primary objectives (summarised in Table 1). The three groups were examined for features broadly pertinent to the basic CoP model that would suggest that these associations of farmers may develop practice-led communal structure and knowledge specifically related to organic agriculture[4] (see summary in Table 2). The following discussion considers the groups in terms of these features.

[2] 'Practice' has been referred to in discussion of CoP as a common-sense way to indicate the routine and normal ways groups of individuals perform those activities by which the community is defined, but 'practice' is itself a concept about which different disciplines generate differing understandings. Whilst there may not be an unified 'Practice theory' (Schatzki, 2001), practices are commonly seen as arrays of activity, although conceptions of 'activity' may also vary over different disciplines, in some cases to include the role and influence of material, non-human entities. Practices may also be said to be embodied and exercised in intimate interaction with artefacts, and natural objects (Fox, 2000).

[3] The empirical work was carried out in preparation for an ESRC CASE funded doctoral studentship

[4] More detailed accounts of interactions within these case studies will be presented in a paper in preparation.

Table 1: Farmers group characteristics

Group	Group Size	Geographical Dispersal*	Criteria for Membership	Main Group Focus	Group Structure	Structured Learning Approach
A	> 20	~ 30 mile radius	Organic meat producer; Commission payment	Marketing channel	Group A sub division of central producer group Small central core core staff (2.5) plus voluntary local facilitators	Expert presentation; Peer-peer interaction
B	Restricted to ~ 20	~ 20 mile radius	Broadly similar interests and outlook	Extension/ discussion group	Farming Connect organised/ financed, including paid facilitator	Expert presentation; Peer-peer interaction
C	N.A** sample size of 10 included	~ 5 mile radius	Local neighbourhood farms; chosen from snowball method of recruitment	N.A.	'Naturally' occurring cluster of farmers No formal organisation	N.A.

Source: Author. (*: nominal distances; **N.A.: Not Applicable)

Table 2: CoP dimensions manifested in farmer groups

CoP DImension	Group A	Group B	Group C
Mutual Engagement	Primarily a marketing channel	Primarily a discussion group- both production and market topics	Informal, irregular interaction between individual neighbours and local acquaintances
	Farmers' membership of alternative producer, discussion groups and use of other market channels	Farmer membership of other discussion groups	Individuals are members of discussion groups
	Variability in members' attendance of discussion meetings	High proportion of members attending group meetings	No neighbourhood meetings of organic farmers
Shared Repertoire	Long term full-time farmers Engaged in beef and lamb production	Long term *local* full-time farmers Engaged in dairy (main product), beef and some lamb	Long term *neighbouring* full-time farmers Engaged mainly in dairy; some beef, horticulture
	Practice discussions e.g. market structure and discipline; processor feedback	Production discussion e.g. benchmarking costs; general organic management (e.g. weed control, antibiotic use, grass seed varieties)	Intermittent one-to-one discussion on specific organic production issues
Joint Enterprise	Diverse attitudes to organic Degree of commitment to success of marketing channel	Diverse attitudes to organic Degree of commitment to productive engagement in discussion	Diverse attitudes to organic No applicable joint enterprise apparent

Source: Author

Group A

Group A is part of a farmer-led producer group that offers a dedicated organic market channel to the farmer. It is a localised sub-group of the producer group, and is one of a number of such groups that were set up as the producer group became more geographically spread during a period of expansion. The localised groups are co-ordinated by local farmer-members, who act as facilitators for group meetings and maintain links with the central production group. Farmers agree to supply minimum numbers of livestock for marketing through the producer group and

accept commission charges on sales. The (small) central producer-group organisation provides marketing services and market-information feedback to the members, and attempts to achieve a certain level of member discipline in maintaining prices[5]. The central producer group also organises advice and discussion events for farmers (including external expert input) that focus on market and processor requirements (e.g. modifying lambing times to avoid oversupply at certain times of the year) as well as addressing topics of organic management.

Group A may be examined in terms of CoPs from two perspectives. The first focuses on the original general producer group. Its structure, established as a collaborative venture rather than a formalised co-operative, is a joint creation of its founding membership. New farmers undergo a process of learning about group norms and are expected to become compliant with group expectations. These norms and expectations derive from the initial mutual engagement between the 'old timers'[6].

The general producer group, and its constituent local groups such as Group A, however, are vulnerable to the effects of diverse individual farmer practice, and to varying levels of commitment from its membership. These practices and behaviours are not necessarily in total sympathy with, or on the same basis as those that created mutual engagement of the original group, and may impinge on the strategic goals of the general producer group. This diversity impacts on the group's ability to build shared repertoires, exemplified at a practical level in encouragement to act in concert by modifying certain practices such as the timing of the lambing period to allow the producer group as a whole to benefit from better market prices. Producer group efforts to encourage more collaborative working practice is focussed on the adoption of shared repertoires that are performed in support of clear and defined joint enterprise of a 'community' extending over the whole of the general producer group[7]. This goal is also in need of continual reinforcement as seen in reminders to farmers for the need to maintain some level of price discipline in marketing livestock that is not sold through the producer group.

Farmers joining the group are expected, therefore, to accommodate a certain degree of group discipline and learn how to collaborate in building a sustainable commercial entity. However, the relationship between (particularly new) farmer members and the producer group is loose, based on a minimum supply commitment in return for marketing services, rather than being based on stronger membership rules and/or more demanding financial investment. The considerable expansion of the group has also distanced farmers from the producer group core and from each other, making the fostering of mutual engagement and common identity based on the original commitment of the producer group founders more difficult to achieve. Without a certain level of identity, commitment and participation, the general producer group may become a simple sales consortium rather than the focus of an organic farmers' CoP. The loose nature of the group, therefore, requires that shared repertoires of collaborative farming practice and marketing are continually identified and reinforced. The central organisation is obliged to maintain a constant justifying dialogue with the membership to establish and reinforce commitment to the joint enterprise.

The second perspective considers Group A as a self-organising CoP, grounded on its role as the main point of contact between farmers, and as the focus of social learning about organic farming. A CoP may be formed based on a communal understanding between farmers of themselves as an association of organic farmers with local identity. Mutual engagement is, thus locally produced in contrast to reaching across the whole, and dispersed, producer group. It may be achieved through prioritising local group-identity that is built through frequent and direct contact (facilitating development of shared repertoire), and from the local group's relationship

[5] Whilst members agree to provide a minimum quantity for sale through the producer group they are free to supply other market channels according to their own initiative.

[6] 'Old timers' cf. 'newcomers' in Lave and Wenger (1991) terminology

[7] The *joint enterprise* in this case may be defined as creating a sustainable and independent organic meat marketing channel.

to the general producer group and the organic market. Mutual engagement on this perspective is reinforced and maintained due more to personal commitment and interaction and less to management effort. Similarly the group's joint enterprise is defined with reference to personal and local-group understanding of what organic farming practice entails, and that includes involvement in the structure of the producer group and its role as a collaborative marketing channel. This perspective builds up local autonomy but with open boundaries vis á vis the general producer group, the organic food market and other actors.

Farmers within the group are members, to varying degrees, of other networks and in some cases of other producer groups (e.g. a supermarket-led production group), which compete for commitment from the farmers and contribute to the way that their farming practice and market knowledges are shaped. Some of these networks include conventional farmers, and as indicated earlier some of the alternative marketing channels may compete with the producer group at least in so far as setting market prices are concerned. The influence of these other networks and relationships are brought by farmer members into the putative CoP based on Group A and are integral elements in shaping communal attitude to the joint enterprise of the group. These influences provide the group with challenges to its identity and integrity, but also with opportunities for new knowledge.

Group B

Group B is a discussion group supported by the state extension service Farming Connect[8], which in this case concentrates on improving farmers' organic production and management knowledge. The group is part of a network of discussion groups and demonstration farms for organic and conventional farmers. Farmers are invited to join a discussion group by the local facilitator, who ensures that the size of the group is kept small, and who attempts to create an association composed of broadly similar farmers. The facilitator manages discussion events on topics often chosen by the membership, which are similar to activities organised by farmers in Group A. Events and discussion meetings include reflection on the demands and structure of the organic food market but without the explicit marketing orientation of Group A. The group is farmer-led to the extent that it makes choices about its areas of interest and activity, but has been created and managed as part of the state extension system.

The group has the potential to be regarded as a managed CoP established and supported by the extension service. Mutual engagement has not emerged through farmer motivation or self-organisation, but is dependent on the active management of a social learning forum. Whilst farmers are engaged in similar organic farming practice their shared repertoires do not extend to include communal commercial practice since the actions of individual members do not impinge directly on the group and its activities. Hence, the joint enterprise is not defined in commercial or marketing terms, rather it may be described as learning about what organic farming entails. In being composed of similar farmers (in the judgment of the facilitator) it might be, therefore, also be expected that the understanding that the group achieves about organic agriculture will be communal

Given its facilitation by Farming Connect the discussion group provides a relatively undemanding interactive environment (in communal terms), and the demands on individual members in maintaining group discipline (in terms of adherence to the joint enterprise) is less than it may be for a more self-sustaining group. However, disagreement is present among members whose attitudes toward organic farming and business differ. These are manifested particularly in terms of a focus on the 'purity' of the organic production system, and a relative lack of discussion on the commercial aspects of organic farm business. Some farmers also choose to be members of other discussion groups, which include conventional farmers, and import influences from these involvements. These differing attitudes and influences affect the definition of a joint enterprise

[8] Farming Connect is an farmer advisory service organised by the Welsh Assembly Government

for the group, however, to the extent that the diversity of views may be used as a source of strength it may succeed in its role as a forum for social learning about organic farming.

Group C

The third group, Group C, is a radically different group to either Group A or B. It is a collection of organic farmers associated by their geographical proximity and identified for their potential as a local neighbourhood community of organic farmers. Group C farmers are not organised as a group into a formal association and there are no formal discussion or advice events[9] by which to gauge communal commitment and identity.

The group was constructed through the 'snowball method' of recruitment by recommendations from peers, demonstrating knowledge about other farmers' general organic status. The recruitment method may also be taken to indicate that farmers have been 'chosen' for involvement in the group by peers, although not all farmers in the group interact directly with each other. Any interaction that may be apparent is significant in demonstrating the extent to which such a 'naturally occurring' neighbourhood group of organic farmers may exhibit the characteristics of a CoP, which are examined on the basis of one-to-one interaction and their aggregation within a neighbourhood community.

Whilst there is no formal communal association, personal interaction occurs, by which farmers gain and provide support (particularly during the uncertain period of conversion) and share advice and information. Farmers have also drawn reassurance in making their decision to convert to organic simply from the existence of the local concentration of organic farmers, and from the example of longer established local organic farmers. Any further communal interaction is, however, minimal, exemplified by some instances of farmers who were in ignorance of their neighbours' progress through the conversion process. On this and similar basis the level of mutual engagement found between the farmers in Group C differs radically from the other two groups. It is diffuse and fragmented and there is little sense in which a shared repertoire or a common identity based on common organic farming practice is constructed among the designated members of the group.

The failure of a neighbourhood community group to develop, however, is not based on an aversion to farmer associations. Farmers from Group C have sought other avenues of association[10] using, in some cases, conventional farming discussion groups in preference to the potential of the local organic farming population, or attend other established organic discussion groups outwith the area. Such a situation indicates that the priority for these farmers is to interact with others with similar attitudes and motivation. That the preferred association-option for some farmers is a conventional farming group suggests that these farmers may not have made a wholesale break with the mentality of conventional farming, but have adapted their own practices to accommodate elements from both organic and conventional farming systems. The compromise may indicate that the more radical features and approaches of an organic system have not been adopted in these cases, and that the *enterprise,* for these farmers may be said to be incremental change narrowly focussed on the needs of their farm businesses. This attitude differentiates them from other Group C farmers who privilege more philosophical approaches to organic farming.

In sum, where a close and 'natural' community might have been expected, local communal interaction centred on practice, was not apparent in Group C. The development of a CoP appears blocked by a failure to focus the aggregation (or neighbourhood community) of organic farmers into a community with a recognisable joint enterprise. Rather than a practice-led

[9] Individual farmers who are nominally members of Group C do participate in organised events and discussion groups elsewhere, often with conventional farmers, suggesting that they are not all averse to interaction per se, but that they have not found or created a community of practice, or of interest within their own neighbourhood.

[10] These include farmer-led discussion groups known as Grazing Groups and Grassland Societies as well as processor-led discussion groups

community the presence of a cluster of organic farmers in a local neighbourhood appears to contribute not much more than a certain contextual element to the farmers' general organic knowledge network. Whilst farmers become aware of the commonality of their practice in time, the level of interaction in this neighbourhood has not been sufficiently strong to translate into what might be considered as a CoP of organic farmers.

Discussion

The CoP framework has been used in this paper to explore social learning among converting organic farmers, and whether this process may be aided by considering associations of farmers as CoPs. The analysis is focussed in terms of the 'mutual engagement', 'shared repertoires' and 'joint enterprise' of the farmers, three dimensions that may convey the extent to which farmers are engaged in a CoP.

In each of the three groups that are considered the demonstrable embeddedness of the farmers in their social and industrial networks, allied to their learning experiences in converting to organic farming, provide an initial level of mutual engagement. Mutual engagement in CoP analysis is emphasised as processes of interaction that helps in defining identity for the converting farmer. In this instance identity is demonstrated in the working style of the farmer, and they may be differentiated on this basis (Fairweather and Klonsky, 2009; Vanclay, 2006). Farmers act on their perception of the styles of other farmers by choosing those with whom they will interact, and the degree of collaboration to which they may commit themselves.

Mutual engagement unsurprisingly, therefore, may be more easily established and maintained between farmers that already have similar styles and attitudes. This observation is explicitly used by facilitators working with the state extension service in recruitment for Group B and may be used to encourage the development of a CoP. In Group A similarly, mutual engagement develops most clearly between farmers who are in regular contact, contrasting with the weaker ties that are apparent between farmers and the general producer group. Where instances of mutual engagement are mostly absent or weak (as in Group C), farmers may still be seen to observe and imitate and to compare their own practices to those of other farmers in the neighbourhood. However, farmers may also demonstrate critical and negative responses to the styles and attitudes of other farmers, which have, in the case of Group C blocked the development of more intimate engagement.

Farmers are associated by what they do and learn together. The activities of Groups A and B are centred on practical farming and business challenges, and in gaining information and knowledge about organic farming and the organic market that affect the farmers' professional routines and habits. Conversion to organic farming brings new repertoires of practice into play, driven by market demands and pressure for entrepreneurial responses to shifting consumer perceptions of organic and/or other alternatives to the mainstream food system. These drivers are explored and new repertoires of practice developed during group discussion. In a CoP analysis, shared repertoires of practice are seen to be generated by group interaction, which are identifiable in the examples provided by Groups A and B. These repertoires provide a powerful binding force to maintain mutual engagement.

Interaction between members contributes to mutual engagement, but there is also the potential for, and actual vulnerability to, processes that may inhibit the development of a CoP or lead to differentiated communities. For example, not all farmers subscribe to a single and well-defined concept of organic agriculture, and the contested nature of organic agriculture is played out in the way that farmers learn from, and with each other. Social learning processes may, therefore, also expose dissent and conflicting views. Group discussion illustrate the changing nature of each group as individual farmers' learning requirements progress; as they may deviate from the norms of the group; or as generations of new entrants become active.

When considering the development of farmer learning about organic agriculture, extension agencies employing a CoP approach may, therefore, focus on the dynamics of situated social learning. These dynamics are practice-based, path-dependent and embedded in extant relationships. A managed CoP must, however, also recognise the vulnerabilities and processes of dissociation that these groups may exhibit. Farmers in each of the groups considered provide instances of dissent, and disagreement. They also exhibit differing commitment to association, and bring the influence of external sets of networks and experiences to associations. As such these farmer associations may be regarded as porous, amorphous structures that are vulnerable to dissociation. However, they may also be considered as exhibiting unavoidable characteristics of maturing CoPs where joint enterprise is in process of definition. To this extent a CoP of organic farmers may be regarded as essentially self-organising, where the power of an extension agency is limited to encouraging conditions for mutual engagement, and to promote shared repertoires. The joint enterprise of the association, which may be signified as the core dimension of the CoP, remains dependent on local interaction and social learning processes.

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