A Practice Centred Approach to Understanding Social

Learning and Knowledge Creation in a "Community of Practice"

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Abstract

Communities of Practice (CoPs) in organisation science are often described as 'the shop floor of human capital' where learning and knowledge creation which underpins innovation evolves. Adopting the Bristol area geocaching community as a case study, this paper draws on the 'practice turn' in contemporary social theory to study the everyday interaction of the community members in their situated practice. Taking the geocaching community and their practice as a collective unit of analysis, the study employed the qualitative methods of ethnographic interviewing, participant observation and content analysis of archival internet forum logs of members to extend our understanding of the performative processes of social learning and knowledge creations in CoPs. A conceptual framework showing how the interactions among actors and their artefacts and reflexivity in practice could lead to learning and knowledge creation that stimulates innovation in a CoP is presented as a modest attempt to improve our understanding of the dynamics of a CoP renewal and sustainability.

Keywords: Community of Practice, Geocaching, Practice, Social learning, Knowledge creation

1. Introduction

Ever since the concept of CoP was introduced by Lave & Wenger (1991), it has received an unprecedented attention resulting in a burgeoning corpus of literature dedicated to studying their structures, dynamics and their effects on organisational performance (e.g. Wenger *et al* 2002; Lave, 1988; Boland & Tenkasi,1995). By virtue of their ability to providing a platform for sharing ideas and providing support to community members, CoPs have been frequently identified with providing a unique context for learning and knowledge creation and often labelled as a major source of innovation. However, a deep epistemic gap exist between what learning, knowledge creation and innovation is and how these performative processes evolve in them to sustain and renew the community and the very practice that brought the actors together. Not surprisingly, Dougherty (1992:78) for example argue that if the numerous theories of knowledge creation and innovations are to be useful, "they need to speak to every day realities".

In bridging this gap, the research draws on the 'practice turn' in contemporary social theory by moving from conscious ideas and values to the taken for granted sense of space and routines of actors as inscribed in the ways they enact their practice which leads to learning and knowledge creation. By employing a practice lens for this study, the main concern here is the every day routine activities and how they are enacted with respect to the practice of geocaching and the epistemological vision is to broaden our understanding on how these discrete activities as enacted in practice facilitates learning and knowledge creation which sustains and renew the CoP. Emphasis on the shared practice is synonymous to the thought of Heidegger as cited by Dreyfus (1991:25) when he argued that *"even when people act deliberately, and so have beliefs, plans, follow rules, etc., their minds cannot be directed toward something except on a background of shared practices"*. The article from a meta-theoretical level conceptualises the practice of geocaching as the object of the community of practitioners (Geocachers) and the practitioners as the subject of the object (Geocaching).Based on this, we dwell on the physical artefacts employed by actors, their habitual discourse they engage in practice and their ongoing interactions to develop a conceptual framework for thinking about of how the performative processes of learning and knowledge creation occur to facilitate the sustenance and renewal of the CoP.

2. Literature Review

A Community of Practice (CoP) refers to a group of people who share the same vision and work together in a concerted effort to achieve a particular aim.The notion that these stable and autonomous groups or communities are key to organisational performance has enjoyed a major affirmation in recent literature (Boud & Middleton, 2003; Saint-Onge & Wallace,2003;Wenger *et al*,2002; Duguid & Brown,2001; Liedtka, 1999).The concept of CoP was first proposed by Lave &Wenger (1991:98) when they referred to it as the *" an activity system about which participants share understandings concerning what they are doing and what that means for their lives and for their communities. Thus, they are united in both action and in the meaning that action has both, for themselves, and for the larger collective"*. Drawing diverse CoPs ranging from Mayan midwives in Yucatec to Quartermasters in the US

navy, they showed how new members who are normally apprentices whose peripheral participation involving doing routine and simple aspects of the practice legitimizes them as members of the group. As they master the art and craft of the practice, their legitimacy increases within the group and socially, they move towards becoming fully identified with the practice.

Following a similar line of thinking, Brown &Duguid (2001:9) described such communities as "a group of interdependent participants providing a context within which members construct both shared identities and the social context that helps those identities to be shared". Drawing on the ethnographic work of Orr (1996), they argued that these informal groups' methods of solving problems remarkably differ from abstracted managerial accounts. This they showed how canonical steps and practices as outlined by management in manuals were inadequate for the everyday work of photocopier Technicians' and that in order to carry out their work effectively, these service Technicians' generated their own non-canonical practices through narratives and storey telling which they employ in their everyday work.

Intimately tied to the survival and renewal of a CoP is the performative processes of social learning and knowledge creation in practice. In this regard the value of a CoP and to a large extent its sustainability and renewal can be analysed and determined in terms of the intensity of social learning and knowledge creation that goes on in practice. The socio-cultural conception of learning as a collective participatory process of active knowledge construction emphasise context, interaction and situatedness (Greeno *etal*, 1992; Lave, 1998; Orr, 1996; Lave&Wenger, 1991).In short, learning in CoPs is about participation, interaction and situatedness at the expense solo learning which takes place in the 'individuals head'. The idea of interaction among actors serving as the pivot supporting learning activities was re-echoed when Bronfenbrenner (1977:518) as cited by Salomon & Perkins (1988) asserted that "in ecological research, the principal main effects are likely to be interaction. For Wenger (2002:229) CoPs are the *"building blocks of social learning because they are the social 'containers' of the competences that make up such a system"* because actors are embedded in them and they provide the requisite context, interaction and situatedness that stimulate learning. As described by Salomon & Perkins (1988), there are four major perspectives on social learning. These, they conceptualize as the broad distinctive meaning or instances where social learning may occur. They concur the first mediation is akin to receiving instructions from a tutor or a mentor. Here, a learner does receive direct help from another agent. It therefore bothers on peer tutoring, collaborative, and cooperative learning. The next is learning as a result of participation in a social process of knowledge construction. Here the individual involved is seen as an "*integrated and highly situated system in which the interaction serves as the socially shared vehicle of thought"* (Salomon &Perkin, 1988.4).

Social mediation may also occur through cultural artefacts since they are culturally and historically situated. These artefacts can range from books to symbols and technical language. They often tacitly embody accumulated shared cultural understanding and carry the wisdom and assumptions that went into their design; they can serve as tools and sources of information that may contribute to learning. Another meaning of social learning occur when the focus falls on collective agency, emphasis is on the working collective which is a perquisite for acquiring more knowledge, understanding and skills. Thus, through the ongoing collective learning processes, a CoP knowledge is generated shared, reused and accumulated (Murray & O'Mahony, 2007) and thus, become a repository of knowledge.

For this reason, Pan & Scarborough (1999:360) described knowledge as a product which is "socially constructed and embedded in social network and communities of practice". Therefore as members of a CoP employ same artefacts, share similar mental models, views and interests (Wenger, 1998), the ongoing interactions among themselves and their artefacts serve as a vehicle for the sharing of the knowledge they have accumulated in their situated practices. As they share similar mental models, individual members existing knowledge structures are able to maximise and convert new knowledge assimilated from others into something meaningful (Ellis, 1965).

It is the accumulated knowledge and interactions that afford community members to reflexively challenge their chosen for granted assumptions and structures that constrain their actions in practice. Reflexivity as argued by Dery (1983) in effect enables members of the community to take a step back to reflect on their actions or consider alternative actions within a given frame of reference or a totally new frame of reference in practice and the punctuated equilibrium that characterise this reflexive process is akin to the mangle of *resistance* and *accommodation* that characterise a practice as described by Pickering (1993).The shared practice of a CoP therefore does not only provide context for activities but serves as the context in which arrangements exist for the transformation and renewal of CoPs. Extending the importance of practice as the generic site for social transformation, Schatzki (2001:2a) drawing on a Heideggerian-Wittgensteinian intuitions notes *"Practice accounts are joined in the belief that such phenomenon as knowledge, meaning, human activity, science, power, language, social institutions, and historical transformation occur within and are aspects or components of the field of practice"*. Practice so be, can be seen as a routinised phenomenon, susceptible to change, in a constant flux that is flexible and varied with respect to situated context.

While existing and emerging structures shape the practice of a CoP, it is the actors practices which in-turn constitutes and reproduce the structures (Sewell, 1992).In this sense, actors as intelligible human beings engaged in their practice can reflect on the activities that constitutes the practice and challenge some of the constraints imposed on their actions in practice in creative ways which then come to transform or reconfigure the very structures that enabled them to engage in the practice. It is this cyclical process of practice-structure transformations that sustains the performative processes of learning and knowledge creation efforts in a CoP that goes to renew the community and their practice across space and time.

3. Presenting the Conceptual Framework

As argued by Sewell (1992:27), human agents are capable of putting their "structurally formed capacities" to use which consequently transform their practices. Hence they should be viewed as *empowered* due to the fact that they have access to various resources they can employ in their practices. These resources range from (humans) i.e. both members and non-members of the CoP as well as non human entities which includes all the artefacts used in supporting, shaping, redirecting and sometimes used so induce the practice. The continuous interactions among actors and their artefacts are not mutually exclusive. The two forms of interactions are intrinsically embodied to form the 'heart' of the shared practice. Without the interaction among actors, the notion of a community doesn't exist; likewise, without interaction with artefacts the shared practice that bounds the community is non-existent. By virtue of this, it is assumed "the shadow of the other is always implicated in the articulation of the other" (Chia, 1998:5). Moreover, putting the community's structurally formed capacities developed through practice and experiences into re-usable knowledge which in turn drives and sustain their practice require reflexivity in practice. Reflexivity-in-practice here is about intelligibly challenging those constrains imposed by social structures and their taken for granted assumptions about reality. The sustainability of a CoP is built through ongoing reflexivity and interactions among members and their artefacts through a variety of mechanisms that may operate in combination or serially that result in learning and knowledge creation. Rather than assuming all CoPs serve as a site for learning and knowledge creation, four distinct dynamics as shown in figure 2 are distinguished that offer new insights into the interaction among actors and the mediating role of artefacts and reflexivity in practice in the evolution of learning and knowledge creation that renew and sustains a CoP. (See Figure 1)

3.1 Learning and Knowledge Creation leading to innovation and renewal

For a CoP to be a site for the evolution of learning and knowledge creation which in turn stimulate innovations, the CoP must display what shall be referred inhere as ambidextrousness in practice. This implies, the actors will not only have to continuously interact with their artefacts, they will also have to actively engage and interact with members of the community so as to develop mastery and efficiency in enacting their practice. In addition to the interactions, Actors simultaneously will have to take a step back to reflective on their 'doings' and question their routine actions and explore alternative means intelligibly by challenge their own assumptions about their world .Reflection in practice is what triggers change and the change in turn triggers further reflections. It is only through these ongoing concurrent interactions and reflexivity or what is hereby referred to as the development of generative movements in practice can a meaningful learning, knowledge creation and innovation can be sustained.

3.2 Theoretical visions and mirages based on pure imaginations:

Actors on the other hand may frequently engage in reflecting on their practice by challenging some of their taken for granted assumptions, but do not actively interact with the artefacts embodied in the practice nor interact with other members of the community. In such a scenario, theoretical visions and mirages based on pure imagination (akin to academic fundamentalism) are expounded and they have no practical value to the CoP or the society as a whole.

3.3 Community in a morphostatic state

This third scenario is where continuous interaction among actors and their artefacts are sustained but the actors fail to reflect on their practice by questioning their own values and beliefs. Here the learning that takes place in the community will be purely single-loop learning (refinement in conduct without change in underlying beliefs) which require no reflections hence has an infinitesimal contribution to make when it comes to creating value or creating knowledge required to sustain and advance the practice. Here, the community will not evolve as the actors are entrapped in their taken for granted assumptions. It will assume a perfect adaptation state and resisting change, thus becoming what is herein referred to as morphostatic state as opposed to being *becoming*.

3.4 Dysfunctional Community on the verge of extinction

Finally, actors in a CoP may not continuously engage and interact among themselves and their artefacts. They miss out on the opportunity of mastering their practice and sharing of ideas and insights. Not all, they may not engage in reflecting on their practice making them dehydrated of ideas and insights. In such a scenario, the community

basically becomes dysfunctional and is the verge of extinction. On the balance of probability such a CoP may not survive for long and will ultimately die out within the shortest possible time.

4. Brief Historical Review of Geocaching

Since its inception, Global Positioning System (GPS), a location based technology had been mostly employed for navigation and military purposes. Those signals available for public use had a degradation feature called Selective Availability (SA) turned on resulting in a decrease in its accuracy to 50m without differential correction. In 2000, the then President of the United States, Bill Clinton allowed the removal of the SA was used for the intentional degradation of signals available to the public (www.geocaching.com, 2007).This was aimed to *"encourage acceptance and integration of GPS into peaceful civil, commercial and scientific applications worldwide; and to encourage private sector investment in and use of U.S. GPS technologies and services"* (The White House, 2000).As GPS signals became available to the civilian populace around the world, GPS enthusiasts who were members of "Internet news groups, suddenly teemed with ideas about how the technology could be used" (www.geocaching.com, 2007).One of the resulting applications that came up was geocaching .The basic idea behind geocaching is that participants create a cache, hide it at an interesting place so others may employ the GPS technology devices to locate the cache. The fact that people involved in geocaching are constantly searching for these hidden treasures has resulted in geocaching been frequently described as a hi-tech version of treasure hunting and participants described as "Human search engines".

In this recreational sport, a box containing small gifts, toys, key rings or coins is hidden at a public location that might be of interest to other people e.g. as a result of its history, beauty or landscape. More often, the box will also contain a small log book in which finders of the cache will have to log their visits with a short message. The cache hider then publishes the co-ordinates of the location on the community's web page (www.geocache.com) sometimes with clues and other relevant geographic information about the cache location. A puzzle may also have to be solved to get the exact location co-ordinates of a given cache. Armed with this information and a personal GPS, cache hunters set off to find the hidden treasure. On entering the 'waypoint' the GPS shows the approximate location of where the cache is hidden. After locating the cache, the 'hunters' then return to the geocaching web page to log their find and write their experience as well as any other comments about the treasury which could be read by community members.

There are various forums on the community's web page where member interact and share their geocaching experiences. Apart from the online contact with members of the community, people frequently organise what they call *Event cache* where interested community members attend, to socialise, share ideas and go on group cache hunting expeditions. Apart from the GPS device, other interesting artefact also employed in geocaching is the *travel bug*. These are special metal tugs usually attached to a hitchhiker and have a unique tracking number. They are created specifically to go on a travel expedition. The bugs are often named, have a travel aim and a supporting personal page on the geocaching web page (Peters, 2004).Most travel bugs are normally hidden near airports *(travel bugs hotels)* and a geocacher going on holiday or a business travel on finding the cache is instructed by the cacher creator to take it with him and place it in the country where he is going. A typical travel bug placed in the United State had the following description: (See Figure 2)

Today, there are over four million people actively engage in the sport with thousands of local interest groups littered all over the world (www.geocaching.com).The fast growing nature of the sport in recent times has resulted in the proliferation of books that seek to explain the nitty-gritty's of the sport and how to get involved (e.g. McNamara, 2004 ;Peters, 2004 ;Shermann, 2004).The popular press has also taken a major role in popularizing the sport by publishing news articles on the emerging trends in the sport as well as the 'inside-out' of the activities underpinning it (e.g. Claire, 2007; Daily Herald, 2007, Einbeck-live, 2007; The Index, 2007).However, an infinitesimal scholarly work has concentrated on this technology enabled sport. For example, Chavez *et al* (2004) in a small scale exploratory study developed a demographic picture of current geocachers. They found, a large majority of the people who are actively engaged in the sport are white males with some College education. O'Hara (forthcoming:4) in an exploratory study to understanding the practices and motivation of geocachers found that the idea of walking with other people and the possibility of exploring different places are some of the major incentives that motivate people to go geocaching. The study noted that *"Geocaching has many notable parallels with what is being offered in the shifting trends in location based computing as supported by sites such as mscape.com"*. In extending our understanding of the evolution of the geocaching community of practice and the art of geocaching as a practice, I draw on the Scholarly work in the contemporary turn to practice to conceptualise the technology enabled sport of geocaching as a practice.

5. Conceptualising Geocaching as a Practice

The selection of geocaching as a practice to serve as the empirical context for this study was theory driven and based on the premise that geocaching is a *materially mediated* nexus of activities. It embodies capacities such as know-how and dispositions and has materially mediated arrays of human activities which are centrally organised around shared skills and practical understandings (Schatzki, 2001).Figure 2 shows the evolving nexus of activities mediated by artefacts which makes up the practice of geocaching. (See Figure 3)

There are basic rules and guidelines that are to be followed in enacting these activities. For example a geocacher will have to seek permission before hiding a cache at any public place. There are also distinct customs and shared practices of writing a message in a cache visitors log book, recording ones finds on the internet etc, etc. Membership therefore requires the acceptance of these distinctive customs and shared practices. However, these shared activities of the community of geocachers are not governed by a given set of ideas, theories or laws- one of the major attribute or dimension of what constitutes a practice as advocated by Barnes (2001).Notwithstanding this, in making sense of these social activities making up the practice of geocaching, the activities is not understood as a mere building block of practice which are supposed to be enacted just for sake of the practice but their enactment are goal oriented and are based on experience and intelligibility of actors.

Tsoukas (1998:54-55) drawing on the classical thesis of the theory of morality as advanced by McIntyre (1985) identified what he referred to as the "four crucial features" of a practice. These features include:

(a) "A practice is a complex form of social activity that involves the cooperative effort of human beings; it is coherent and, therefore, bound by rules and it is extended in time". Here, he goes on to explain that practices are institutionalised and that the underlying logic is that: "although practices alone are articulate forms of social action, if they are to be sustained, they will inevitably become institutionalised".

(b) "Every practice establishes a set of what MacIntyre calls 'internal goods', meaning goods that can not be achieved in any other way but by *participating* in the practice it self". The idea here is very similar to the literal saying that 'the proof of the pudding is in the eating'. It behoves on an actor to fully participate and engage in a practice in order to appreciate and share in the collective practice and understanding of the practice. By contrast an external good is something that can be achieved without participating in a practice e.g. money, fame etc. He concurs that "where as the achievement of internal goods benefits potentially the whole community who engage into a particular practice.

(c) "Participating in a practice necessarily involves attempting to achieve standards of excellence operative in the practice at the time. Unless one accepts the standards of the practice into which one has entered and the inadequacy of his/her performance *vis-à-vis* those standards, he/she will never learn to excel in that practice".

(d) "Every practice has its own history which is not only the history of the changes of technical skills relevant to the practice, but also a history of the changes of the relevant ends to which the technical skills are put".

Taking the four crucial points in order, the idea of individuals taking personal responsibilities for the safe transfer and movements of   key artefacts like *travel bugs* and *geocoins* along as well as the maintenance of caches, are just few examples of the cooperative efforts of actors in working together to sustain the shared understanding of their practice. With regard to the second feature, the creation of caches "which is an integral part of the caching experience" (O'Hara, Forthcoming: 8), the analytical skills required in solving puzzles to find location co-ordinates, the sometimes laborious activity of searching, and the associated thrill in finding a cache and exploring novel locations all together can never be achieved except by participating in the practice of geocaching. While an individual may enjoys this experience during his hunting expedition, the person who hid the treasure also enjoys all the thrills involved in preparing and hiding the cache, as well as being able to share his view about a particular location with an unknown person. This implies the "internal goods" delivered by geocaching does not benefit an individual alone but rather, the community of geocachers by continuing the advancement of the generic social aspect of the practice.

The third factor is very similar to the observation made by Barnes (2001:20) on the scope of practice when he claimed that "to engage in practice is to exercise power". The power possessed by the community whether or not it is exercised or manifested is one that endures and asuch acts counterfactually by actualising its effect in an open system when actors interact based on their shared practice. Thus, Barnes asserts that ordinary members of a given practice "take a theoretical perspective in orienting to each others practice". Orienting oneself to others will therefore require accepting the collective standards of the practice and making conscious efforts to achieving and maintaining them as espoused by the practice so as to become a competent member of the community. This is an intrinsic part of geocaching as O'Hara (2007) found out the collection of cache find serve as a demonstrable record of what one has achieved with reference to other people. The desire to achieve more in some instances drive people

to set targets for themselves which then invariably serves as an additional   incentive for them to excel in their practice.

The fourth factor which is concerned with historicity can be understood well by tracking the evolution of geocaching .Geocaching has its own history dating back to when the US government made GPS signals available for civilian when the first cache was hidden by Dave Ulmer on May 3rd 2000(Peters, 2004) to its current status as a global sport. The continuous transformation of the skills required to participate since its inception, as a result of the continuous improvements in its associated artefacts, the incremental improvement and understanding of the shared practices, implies that geocaching as a practice is in a constant flux of transformation. The activities underlying the practice are dynamic and the continuous expansion of their scope to meet local context by individuals and groups is a testimony that geocaching is never static but in the constant process of *becoming*.

6. Research Methodology and Methods

A qualitative single Case based approach was adopted for the study and the empirical research site was the Bristol area geocaching community. According to Yin (1994:13) a case study is an *"empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident and relies on multiple sources of evidence"*. It is ideal for a study of situations where the variables of interest will be far more than what data elucidates. Kim (2006) argues the qualitative case study approach "seeks to uncover meaning by analyzing rich, non-numerical information in a context of a particular case or multiple cases". More importantly, it comprehensively *"satisfy the three tenets of the qualitative method: describing, understanding, and explaining"*(Tellis, 1997).The approach provided the unique opportunity to understand the actors lived experiences as well as their inherited knowledge which enabled the research to probe further into what disposes them to enact the practices they do, uncover when and how they do them as well as their aim in their entirety without necessarily isolating them from their context (Hartley, 1994).

Although numerous voluntary practices exist, the single case of geoaching was selected because it provided the right setting and access to the phenomenon understudy while representing a very special case of a CoP existing beyond the boundaries of organisations. Unlike traditional organisational based CoPs where working in the firm is the only means by which actors can secure membership, it is a 'network' where membership does not require a potential actor to belong to a specific firm, a professional or elite group. It is open to anyone who is interested in taking part in the practice. Its 'voluntary' nature therefore requires actors to solely bore the cost of securing the requisite resources needed to successfully engage in the practice as well as all the associated risk that comes with the enactment of the practice. It also differs remarkably from the numerous evolving virtual communities (e.g. the open software CoP) in that, apart from members interacting with one another online, they also frequently meet "face to face" to engage in some activities related to their practice, exchange notes, share ideas and enhance their individual social capital. The practice of geocaching (geocaching CoPs) can therefore be seen as a new evolving hybrid form of CoPs which combines the strategic features of both traditional and virtual Cops. Furthermore, Geocaching as a practice in which members engage in outside the confines of their respective organisations is hereby conceptualised as a peripheral CoP capable of providing unique insights and explanations for emerging patterns which can serve as a potential threat or opportunity for organisations. It is anticipated the use of this special case should allow the elucidation of particular insights that may allow the making of inferences about other CoPs (Siggelkow, 2007).

The qualitative data collection techniques employed included ethnographic interviewing, participant observation and content analysis. In all three key *active* (Note 1) geocachers aged between 22 and 45 were interviewed. Archival online logs of the community members with respect to their geocaching activities were used for the content analysis. A single cache event which attracted fifteen (10) geocachers in the Bristol area was attended where the participant observation was done.

6.1 Ethnographic Interviews

As argued by Chia (2000:515)*"language is that prevailing means for codifying and hence rendering 'articulable' that realm of sense-experience which actively resists codification and representation,it must be our first port of call in our search for a deeper understanding of the meaning and effect of discouse in an organisation"*.

Guided by this dictum,the first technique used to collect data was an Ethnographic interview (Fielding& Fielding, 1986) a hybrid form of qualitative interview The technique is quite similar to the qualitative interviewing which (Alvesson, 2003) described as "relatively loosely structured and open to what the interviewee feels is relevant and important to talk about". In this type of interviewing, *"questions are considered, rephrased and analysed with interviewees so that they can discuss how they experience their work world and what kind of things are meaningful to them"*(Dougherty 2004:40).It is capable of providing   detailed rich account of experiences as well as aiding "the microscopic recording of face to face interaction"(Knorr-Cetina,1981:42).Unlike other forms of   research

interviews which typically requires respondent to give a specific answer to a posed question, it provided a unique methodological tool that allowed participants to express their thoughts, feelings and describe their interpretive schemes while capturing such narratives contextually. Thus, allowing "the 'voices of the field' to tell their own stories in unexpurgated fashion" (Hollinshead & Maclean, 2007:1563 citing Czarniawski, 1998).

After a participant was re-introduced to the background and aims of the research, interviews typically began with questions probing when and how they got into the hobby of geocaching as well as their number of finds. This was aimed specifically to selectively reactivate the respondents past patterns of thought and action, which invariably would be routinely incorporated in their current practice of geocaching (Emirbayer & Mische, 1998). While the interviews were been tape recorded, mental notes were simultaneously being made which enabled the further probing of participants to shed more light on important events. On the average, the interviews lasted for an hour and half. The data obtained from the ethnographic interviews were at a latter date transcribed and analysed.

6.2 Content Analysis of Archival Electronic Logs

The use of actors electronic logs in this study was informed by two major reasons.First,it was used to check for the authenticity of some of the assertions made during the ethnographic interview by the three research participants .Secondly,since the internet was a major medium through which geocachers interact among themselves,it was the only ideal means   to capture at least exactly they discuss and share among themselves.So in this case, the electronic texts as logged by the participants on the UK discussion forum represented factual information and to some extent the participants communicative intentions in a complex, rich, and opaque manner.The logs were therefore thought to have specific elements whose defining features link them to a form of situated communicative act that drives learning,knowledge creation and subsequent group innovation process.In this regard Hank (1987:678) argued that "whether we read a text, fiction, parody, prayer, or documentary is a generic decision with importatnt consequences for interpretation".

In doing this two famous and most active geocachers in the Bristol area (Valliant King and Captain GoreTex) as reported by participants in the work of Ohara(2007)were used as the starting point to analyse some of the conversations that go on at the geocaching web page.These two actors profile pages on the geocaching websites were visited and their forum post link were used to track the available records of all their logs and contributions on the different UK forum pages.Three major discussions they have participated in were copied and analysed by reviewing the entire logs of others who have contributed to the topic or subject under discussion. In the words of Hanks (1987:669) these discourses displayed what he referred to as an *"emergent forms of representation, produced by local actors, in an apparent attempt to set at least some of the terms by which their social world would be regimented"*.

Although there was a significant stylistic continuities across these texts,the challenge inherent in the textual analysis of the research participants logs was the masking of the possible heterogenous cognitive abilities of the actors and identifying prior experiences and discourse in which participants have earlir on engaged in that resulted or contributed to them writing the text in question in that particualr context.The major question posed by this heterogeinity also concerned how the individual participants texts hangs together as a coherent whole and the causal link between them and the phenomena under consideration.The electronic logs as analysed here,were seen as a product of the practice of geocaching,and the recurrence of identifiable discourse features in them as capable of extending our understanding of the relation between the linguistic form of such texts and the broader social and cultural world in which they were produced.The electronic text as employed in this study was aimed at showing how they effectively contributes to the transformation of the linguistic habitus,discourse and practices   which can be the relevant drivers of knowledge creation,learning in a CoP. In this sense, these documentary texts were used as a strategic tool to assert transparency and supports "claims about the 'native's point of view' and the validity of the authors interpretation" (Fine, 2003:42).While this may reflect a dynamic means of mapping the researched situated thinking paths in practice, I do not proclaim this as an 'objective' means to capturing the research participants thoughts and actions.

6.3 Participant Observation

Participant observation as a method was employed to see how the research participants engage in the actual and situated activities underlying the practice of geocaching. It was used to unearth if applicable, some tacit rules that has never been observed nor codified in the learning and knowledge creation literature. In the words of Becker (1958:652) the participant observation was *"aimed at understanding groups in their situated activities rather than demonstrating relations between abstractly defined variables"*. The social context for the participant observation was a cache event code named "urbanite" which was organised by one active geocacher at Yate in Bristol. At the beginning of the event when I was introduced as a researcher to the group by the organiser, it was clear to see some

aroused anxiety among some participants as they felt some form of intrusion and were very curious about the research intention. However, as they found out I share their interest and was part and parcel of the community, those feelings begun to diminish instantaneously and they started to show great interest which facilitated my transition from a passive position to an active 'member-researcher', thus becoming part of the context being observed. This mutual habitation evolved gradually during the course of the event. After exchanging pleasantries, we formed a group of three made up of at least three members. I was in a group made up of three males and a female. Armed with our location coordinates and hand held GPS devices, we set off to search for the hidden caches placed in the area specifically for the event.

7. Research Findings

Members of the community as competent practitioners who continuously engage in the practice are very much conversant with the routines and the actual praxis underlying their practice. Being competent here implies each actor understands the technical language that frequently characterise geocaching discourse and capable of contributing meaningfully during interactions. However, because the practitioners are geographically dispersed, their situated context of practice may differ and as a result each actor may have developed some rational strategies for coping with mundane and minute problems they might encounter in practice. Thus, all actors at any point in time may function simultaneously as a facilitator and a student during group interactions. This assumption was reinforced when an interview participant said:

"I also like the emerging community spirit on the internet which is a bit peculiar because it is the internet community that literally goes to the field. Every body on the web page has gotten some experience of the geocaching world."

An example of the ambivalent nuances of social learning and knowledge creation as a result of interaction among actors were captured from the participant observation when the person with the highest number of finds at the cache event narrated his systematic and robust way of profiling all hidden caches in the Bristol area that enabled him to find caches as easily as possible. However, his desire to be the first-to- find a cache has never materialised. At this point, a participant stepped in to lecture the group on the exact times new caches are published online, so members can note and get to the nearest cache before someone else get there. By listening with rapt attention to the various accounts as narrated by the actors from multiple perspectives, members of the group then start to engage in scenario thinking a key aspect of social learning and may come to learn better understand and appreciate what, in other circumstances, may be perceived and dismissed as irrelevant or contingent on their situated practices. At the cache event, it was observed most of the people attended to meet and make friends with people who share their interest and identity. However, as a bulk of the conversations that went on were centred on the practice of geocaching. The conversations predominantly were centred on fantastic and magnificent failures and successes chalked in their practice. These failures and successes were exclusively communicated through stories and tales. This was how the actors by virtue of their interaction shared their experiences and swapped notes on good practice. For example, one participant told of how he and his family got approached by two secret agents because their actions looked suspicious:

"They came out to us and say, are you looking for a small bug? Well it's underneath the bush here; you are the third group of people coming to look for it today. Can you please get it and kindly leave the park because we have a VIP coming here in half hour"

Another recalled how he forgot to take enough batteries before setting out for treasury hunting, only for his hand held GPS to go flat in the woods. The implicit ideas behind the telling of those stories were to give other participants the opportunity to learn new ideas and skills in enacting their practices correctly. It also shows how interactions with artefacts, in this case technical tools serve as social mediators of learning. While some tools such as the batteries and maps may do so as simply as information sources, others such as the geocoins and travelling bugs may serve as mediums for symbolic communication. As argued by Salmon &Perkins (1998:11), these tools may provide a "means to act upon the world and as cognitive scaffolds that facilitate such action". They go on to conjecture that "some tools not only enrich ones cognition but actually transform it". In Variance with individual learning whereby the dominant modes of social configuration is a teacher to learner, the social learning that took place in the CoP was well equivalent to peers working together in a classroom setting to facilitate learning among themselves. The idea is like working together to actively construct a solution or accomplish a particular task. This was characterised by ongoing intensive interaction among the various actors coupled with rich feedbacks delivered in real time, highly personalised and situationally contingent guidance and encouragement. For example, in response to an actor who thought the actions of other geocachers in his area were basically impeding his quest of becoming a First-to-find, a respondent writes:

"Understand your frustration. There will always be a local First-to-Find(FTF) hound its unavoidable I wish that occasionally they would sit back and let someone lese get the odd FTF but they don't operate that way for some its a matter of principle to try every time for the FTF and bookmark each one etc. But if they stay back its not a race is it? Same as members only for the FTF hardly a fair race when half the runners are not included and members have access to instant notification anyway. My advice is this look for patterns, do you release in the week? Well if they work nights or from home or have a mobile job you are just playing into their hands. Do they go out normal caching on the weekend? Which is their favourite day? We try to get our caches released late Friday or Saturday night so that as many people as possible will see them ready for Saturday / Sunday morning. A note to the reviewer usually yields results. Release your caches in batches at the same time no one can be in two places at the same time can they? Also don't log TB's into caches before they are released anyone watching them (and now you have mentioned you are releasing new caches I can bet any TB's you have in your possession are being watched) will see the cache name and a link to it on the bug page".

Another respondent in contributing to this very subject in question wrote:

"Yet another thread where someone's getting all excited about how someone else plays their game. To be fair though, I've been the newbie going home with the look of delight on my face after FTF one of Mrs B's caches and I've also sent some caches in for approval on a Friday night - just to give everyone who works in the week a fair crack at finding them. It's a bit of a non-issue for me really - I can see both arguments. If you make a big deal out of being FTF though, and how many FTFs you have, you can't expect people not to go out and try to be first. It'd be a bit like football and keep passing the ball around until everyone has a chance to score."

In the first instance, the actors comments highlights how views as advanced within a given group are deeply embedded in a cultural context. It is a significant observation that the content and direction of the discourse as developed here typifies an emergent and some how haphazard process as opposed to a deliberate design aimed at explicitly encouraging learning. This non moderated evolutionary process however allows and encourages actors to publicly share some of their tacit assumptions which can challenge other actors to reflect on their situated practices.

Another distinctive way through which actors interactions facilitated learning within the practicing community was the accuracy of the information related to feedbacks given to members about the cause and effect relationships between individuals' or group actions and outcomes. This in a way provided the actors an opportunity to reflect on their actions and consider alternative actions within a given frame of reference or a new frames of reference (Dery,1983).Thus, the rapid feedback supported both single and double loop learning(Agyris,1983).For example, a participant in a quick response to another member having problems in locating some caches draws on her own repeated, ritual confirmation in practice to explain how an immediate routine activity could be executed correctly.

"In my area most new caches are found by either of 2 local cachers, I think the reason has more to do with the fact that they have already done most of the caches around here and as soon as they see a local cache they will go to it irrespective of whether they are first or not. Both are experienced cachers who often iron out teething problems, but whatever cache I go for it is still the first time I have found it, yes it is nice to get to a cache first but it's also horrid if you take the kids out, drive nearly an hour (real local caches don't exist) start to do a multi end up with a DNF then find out the setters have made a mistake on the cache page If you really want to give others a chance politely email the usual FTF's and ask them to wait"

Some of the ongoing learning and knowledge creation that follows the reflections that may occur on receipts of feed back was characterised by re-examination and changing of values as evidenced in the articulation of intelligibility. Highlighting this case is the suggestion made by a participant in reply to an earlier online log.

"Forgive me if I am totally wrong but I was under the illusion that ALL caches set for events had to be 'permanent' (min life expectancy - 3 months) caches in order to pass the criteria for publication on GC.COM.I will get it right next time round!"

Constitutes a collective learning system whose performance depends on the extent to which its actors are prepared to share, create and consume knowledge.

From a particular problem solving situation, an actor writes:

"Over the last few months, the server has been regularly crashing. The whole box just freezes, with nothing in any log file that I can find. It happens when the machine runs out of physical memory and seems independent of how much swap I have, or where I put it. I can no longer update people's stats because that process uses more memory than is in the box. So, I've taken a couple of days off work, during which time the site will be down while I try to get to the bottom of what's happening. First step is to re-image the server back to the official 1and1 system, which will

take several hours. If that cures the problem, it's just a matter of bringing the various sites back up. If not, I guess I refer it to 1and1 as a potential hardware issue."

The above quote shows that the social learning and knowledge creation processes in the CoP was also not linear as depicted in the existing management literature. In practice, it required continuous reflection and exploration of new ideas and insights punctuated by both failures and successes in practice. As argued by Spinosa (2002) all practices regardless of the explicit intentions of actors over time undergo transformations leading to the addition of new practices to the core ones. While the additional evolving practices developed here are shaped by the ongoing interactions and reflections that occurred in practice, the resulting core practices in turn shapes future interactions and reflections which sustains the practice. This represents the innovations that occur in CoPs. For example, a participant draws our attention to some of the new core practices that has evolved in the geocaching community:

"There is this "caching trash out" which is an American programme, the idea is if you are geocaching then you should tidy up, so you go out with a bin bag during caching and pick up debris and waste in the caching area."

In this case, the practice of geocaching is seen to have been elaborated to cover the advent of a new era of global environmental awareness. The actors here are basically dealing with environmental problems simply by engaging in the practice of geocaching. So as the skills of geocaching become habitual, they continuously draw the actors to recognize things relevant to their skills or practice which they would have historically pass over. Another way to understanding how innovation stimulated in practice provides the possibility of elaboration can be seen in the way Heidegger as cited by Spinosa (2002:208) conceptualized practice as "bringing things into their own this way". thus *"practices tends towards a refinement whose goal is to understand better how such product that draws people not only to use it but also to understand better how such products are an important part of their lives".* The emphasis here is on the possibilities of the practice as induced by constraints and enablement and how their worthily purpose has a tendency to impact on the lives of the actors. So for example a participant in expatiating on how he has drawn on the practice to improve his tourism experience claimed:

  "You find the hidden part of a community which the tour guide may not tell you about. We do geocaching in Bristol even as we stay here for over six years, we conceive ourselves as very new to the area. We also go geocaching when we are on holidays, sometimes in America, Ireland and recently the Isle of White because you find out the other hidden parts including monuments, places where battles took place which the tour guide may not tell you about and if the geocachers has placed them correctly, then there is always a good reason for a geocacher to be there."

When the research participants were asked whether they felt the practice of geocaching can have any commercial application or implication on society as a whole, the response was sharp and instructive as illustrated in these two separate extracts:

"I think geocaching could be good for team leadership. It should be a good way to teaching how to work in a team especially when companies go for "away days."

"City councils should plant their own caches in say another city. Say Bristol plants caches in Birmingham that give information about the city of Bristol and Birmingham planting caches in Bristol that give information about Birmingham."

These explicit statements imply the participants by virtue of the current engagement in the practice of geocaching are continuously engaged in the exploration of their "activity-place space". They emphasise how the shared practice of the community allows actors to take a step back to reflect on their practice and afford them to develop creative ideas, insights, processes and new ways of thinking that could enhance and sustain the practice.

8. Conclusion

The conceptual framework as presented in this paper is aimed at extending our understanding of the mechanism and dynamics between the interactions and reflexivity that goes on to sustain the performative processes of learning and knowledge creation which sustain a CoP across space and time.

The ongoing interactions among actors and their artefacts evidently set the pace for the survival of the CoP. However, it was the ongoing reflexivity in practice on the part of the actors that served as a catalyst for the transformation of the opportunities resulting from the dynamic interactions among the actors and their artefacts in their situated practice. In practice of geocaching turned to be patterned and meaningful and asuch can be concurrently conceived as both structures and material (Swidler, 2001).While the structures shape the CoP's practices, it is the actors practices which in-turn constitutes and reproduce the structures (Sewell, 1992).In this sense, actors as intelligible human beings engaged in their practice can reflect on the activities that constitutes the practice and challenge some of the constraints imposed on their actions in practice in creative ways which then come to transform or reconfigure the very structures that enabled them to engage in the practice. It is this cyclical process

of practice-structure transformations as aided by reflexivity in practice that results in the renewal of the community and their practice.

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Notes

Note 1. Active Geocachers are those who have upgraded premiership status on www.geocaching.com and have created a cache within the past 2months with at least 10 finds to their name

Continuous Interaction among Actors and their Artefacts in Practice

		Yes	No
Reflexivity in Practice	Yes	*Learning and Knowledge Creation Leading to Innovation*	*Theoretical Visions and Mirages based on Pure Imaginations*
	No	*Community in a Morphostatic State*	*Dysfunctional Community on the Verge of Extinction*

Figure 1. Integrative Framework for Learning, Knowledge creation in a CoP.

Name: All American Pastime
Released: Thursday September 25, 2003, by Seal Rock George
Origin: Oregon, United States
Recently Spotted: In the geocache: Danielle's Delight
Current goal: The All American Pastime travel bug wants to celebrate baseball. Visit stadiums; meet players (young and old); share in the thrill of wood hitting the ball, the smells, the sounds, and the memories.
About this item: Please take this bug if you are willing to take the responsibility to move this along. Take pictures of yourself with it, or pics of where it travels-and load them onto this site. Also take a few minutes and share your own base ball stories with us. In other words, just have fun with this-but don't keep it too long-there are others who want to share the fun! Also, attached to this bug is an American Cancer Society Relay for Life tag. If you're interested in helping fight cancer (travel bugs hate cancer), you can contact the ACS using the info on the tag.
Recent sightings: Monday, September 29, 2003 Seal Rock George placed it in Danielle's Delight by Gone Bananas."

Figure 2. A Travel bug

			Cache Events	**●*Participating in online discussion forums* ●*Participating in Event Competitions* ●*Group hunting and Storey Sharing***

GEOCACHING

●*Geocoins*
●*Travel bugs*
●*GPS device*
●*Maps*
●*Log book*
●*Internet*

Cache Creation

- *Selecting materials to stash*
- *Selecting a place to hide the cache*
- *Publishing the coordinates of cache*
- *Cache tracking*

Cache Search

- *Solving Puzzles*
- *Using maps and clues*
- *Finding location coordinates*
- *Reading and interpreting GPS device*

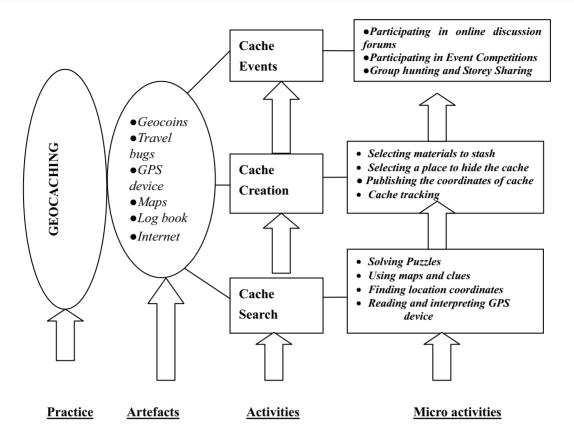**Practice**   **Artefacts**   **Activities**   **Micro activities**

Figure 3. Mapping the Activities under the Practice of Geocaching