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Thesis Chapter 6

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Chapter 6

Research Methods

6 RESEARCH METHODS

6.1 Overview

A developmental research approach was adopted to study the activity system of the Trainers’ Forum (TF). Engeström’s activity system model was used within a CHAT framework, to analyse the embodiment of the concept of practice, in the activity of sharing and discussing the practice of clinical research training.

The research was conducted in three distinct phases as shown in Table 5-3 (Analyses Plan) at the end of Chapter 5 (Research design). Qualitative and quantitative methods were used to gather data, which included: participant observation; questionnaires and interviews. Because the study concerned a community of trainers and its practices, data sources were varied. For example, texts included interview transcripts, documents & written discourse as detailed in Table 4-1 (Methodological framework: Data sources).

The coding conventions for the varied sources of data are shown in Appendix I. These conventions are used in the footnotes of the three findings chapters 7, 8, and 9 respectively, to indicate data sources.

Each stage of analyses (object-historical, theory-historical and actual-empirical) was conducted using an interpretative framework based on CHAT, as described in Chapter 3, section 3.3: Operationalising the conceptual framework. This framework developed progressively through each phase of the research (initial, exploratory and confirmatory).

Finally, the concept, methodology and experience of practice within the TF were explored by applying this conceptual-analytical framework as an evaluative tool.
6.2 Data collection methods

In the initial phase, research began with an ethnographic and critically reflective approach. A questionnaire was distributed in the exploratory phase\(^{29}\) of the research. The final confirmatory phase involved conducting interviews. Each of these research phases, with associated methods and data collection tools, is described in the following sections.

6.2.1 Phase 1 Initial research method: Retrospective participant observation

The empirical work involved episodic, longitudinal, observation of public spaces within a community of practice, whose members ranged in their levels of experience and expertise. It took the form of participant observation at scheduled meetings of the Trainers’ Forum lasting 4 to 6 hours and held two or three times a year. Observations took place over a period of five years from the second meeting after inception of the Trainers’ Forum in December 2003. Field notes were written at TF meetings.

Notes were written as soon as possible thereafter in a reflective diary to capture utterances, initial thoughts, feelings, and impressions related to observations at the Forum and from further analysis of field notes. Both field notes and reflective diary extracts were later transformed into analytic memos or filed notes for formal data analysis and collated into mind maps.

6.2.2 Phase 1 Data gathering instruments

Field notes included:

- Agenda with topics and number of attendees
- Brief notes about session topic & content/format
- Individual agenda sessions categorised according to Teaching & Learning approach / methods in evidence at each session (monologic: talk/presentation with Question & Answer (Q&A); dialogic: facilitated exercises including discussion)

\(^{29}\) Second stage
• Observations during meetings, including quotations/utterances capturing initial contradictions to be explored

• Spontaneous reflections during meetings

Reflective diary included: -

• Ongoing spontaneous reflections critically analysing (Minton, 2005):-

• Behaviour: what was surprising?

• Learning/teaching activities: what went well/badly

• General insights

Documentary evidence included: -

• Job advertisements for positions with training responsibility

• Articles published in the ICR Journal (CRfocus) related to either Training Forum activities or training issues in general

• ICR TF mission statement published on the ICR website

• TF presentations published on the ICR website.

6.2.3 Phase 2 Exploratory research methods

6.2.3.1 Informal interviews

TF participants were interviewed informally either during breaks or at the end of meetings to initially establish background, role and involvement in TF activities/sessions/meetings.

6.2.3.2 Survey

The questionnaire survey was designed to establish demographics concerning trainers and their workplace practice settings. It was also intended to further elaborate collective understandings of practice in terms of concepts and methodology used in everyday practice (e.g. evaluation) by trainers because, as tools, such artefacts represent common understandings of practice.
Common understandings of the concepts of reactivity/pro-activity were also explored since these terms were frequently used within various Forum meetings, but without further explanation.

The questionnaires were distributed in three main ways:

1. Actively at one particular training forum (December 2006): by distribution to all attendees; or

2. Passively making them available at three subsequent Forum meetings to attendees (i.e. allowing attendees to complete/collect a questionnaire voluntarily at the meetings in May 2007, March 2008 and June 2008).

3. Using e-mail via the ICR (i.e. Forum liaison personnel distributed the questionnaire via e-mail to all Forum members (February 2007).

### 6.2.4 Phase 2: Data gathering instruments

#### 6.2.4.1 Informal interview tools

In this phase of the research, interviews with TF participants were conducted informally i.e. on a spontaneous basis as the occasion arose. Accordingly, no formal interview schedule was used. However, participants were each asked similar questions to establish *what is going on around here:*-

- Why are you here today?
- How are you involved?
- What’s the history of your involvement?
- What did you think of session X?
- What did session X mean for you?

Personal communications by e-mail were also collated for later analysis with participants’ permission.
6.2.4.2 Questionnaire

Respondents were asked to reply to 38 statements concerning their background, qualifications and workplace settings; their experiences related to training practice, course design, delivery and evaluation; and their definition of reactive and proactive training.

Statements were divided into three sections: Role & responsibilities (questions 1–10); Organisational tendencies (questions 11 – 21); and, Demographics (trainers’ and organisational characteristics) (questions 22 – 38). Responses to questions 1 to 21 were gathered and scored using the following Likert rating scale:

1. Strongly disagree
2. Tend to disagree
3. Tend to agree
4. Strongly agree.

The questionnaire (shown in Appendix B) was arranged into sections with questions gathering information about roles, responsibilities, and organisational tendencies, as outlined in Table 6-1. Respondents were then categorised according to demographic characteristics into qualified trainers and non-qualified trainers within four types of organisation\(^\text{30}\) of different size.

Associated research information sheets (RIS 1 & 2) and informed consent forms (ICF 1 & 2) are shown in Appendices C, D, E & F.

\(^{30}\) Pharmaceutical company (pharma); Contract Research Organisation (CRO); Independent Training provider (ITP); Other.
6.2.5 Phase 3: Confirmatory research methods

6.2.5.1 Observation

Observation in this phase of the research differed from the initial phase, in that meetings were digitally recorded and later transcribed, as well as captured in field notes. Feedback records were also gathered from five Trainers’ Fora: September 2005, September 2007; February 2008; June 2008 and October 2008 for later analysis.

6.2.5.2 Interviews

In order to gather data representing different levels of participation within the community interviewees were selected from two sources. These two sources included:

- Questionnaire respondents who provided contact details and
- Opportunity sample of interviewees selected from earlier participant observations.

The opportunity sample included steering group members, other experienced members and less experienced or less involved members classified respectively as core, active and peripheral participants, as explained in Chapter 5, section 5.1.3.1.

6.2.6 Phase 3 Data gathering instruments

6.2.6.1 Interview schedules 1 and 2

During the final phase of the study, two rounds of formal interviews were planned that built on informal interviews conducted in the first or second stages of the research. Initially, approximately six to eight interviewees from each category of Forum participant (core, active and peripheral) were approached in person, and then followed up by e-mail. Fifteen members were informally interviewed in person during breaks or after meetings. Of those who agreed to be formally interviewed, four belonged to the peripheral group, with three each from the active and core groups. In total, eighteen interviews were conducted by telephone: nine in-depth initial interviews, and nine in-depth follow-up interviews. Both sets of interviews lasted for approximately one hour, producing transcripts ranging from 8 to 36 A4 pages, and
averaging 19 pages. Interview schedules are shown in Appendices G and H, respectively. Interviewee profiles are shown in Table 8-1.

The interview schedules were semi-structured in design and were intended to find out what was happening at the TF from different perspectives, and at different levels of participation. For example, during sessions lead by presenters or facilitators at the TF, it was observed that the form of interactions (trainer vs. audience or facilitator and participants) differed based on a monologic or dialogic approach to the activity of sharing / learning. Thus, two different ways of communicating and sharing/learning ideas (based on didactic or dialectic principles) were also apparent in these two different approaches, which it was proposed depended on the dominant epistemology of participants. Consequently, the first interview schedule was designed to determine participants’ epistemological beliefs about knowledge in relation to the cognitive, affective and psychomotor domains of Teaching & Learning. That is, epistemological beliefs determining the approach to the activity of training (as a content-driven activity with the objective of transferring information or a learning process with the objective of building or increasing knowledge) were explored.

The following aspects were also explored in the first interview:

- TF participant’s background: employment history, qualifications, training experience
- Concept of practice: what is training?
- What does training mean/involve (cognitive domain)?
- What does it feel like (affective domain)?
- What does it look like - what happens (psychomotor domain)?
- Epistemology: what is our approach to training: how do we talk or write about training, or do it? How is our discourse about training framed in terms of our theory of knowledge? How are our theories embodied in how we are, what we value and what we believe?
In the second schedule interview, members’ relationship to the TF and experience of it were explored. Epistemological aspects of the concept, methodology and experience of practice were also explored as shown in Table 6-2, at the end of the chapter.

Exploring these aspects was intended to examine the relationship between participants' EFD\(^{31}\) and the structuration of practice, which manifested in the form of training idioms, interactions and structure of practice at the TF. Thus, as well as examining the influence of personal epistemology in particular manifestations of practice, I also hoped to examine the conditions governing practice (i.e. rules and resources; whose interests dominate: who leads, who has power?).

### 6.3 Data analyses methods

#### 6.3.1 Overview

The analytical strategy for the study is shown in Figure 3-2, in Chapter 3, which in turn corresponds with the research analysis plan shown in Table 5-3, in Chapter 5.

In the first phase of analyses in this research study, *what is going on around here* was observed. First, Lave and Wenger’s (2002) *community of practice* construct was used to contextualise activity; and second, activities, actions, operations were framed using Engeström’s CHAT, having delineated the TF using his activity system model (shown in *Figure 2-2, Chapter 2*). Moreover, *how we are doing things* was considered in terms of the concept of practice, in order to understand *why we do things the way we do* and to determine the need state and primary contradictions in this system of activity. In effect, the concept of practice was the main focus of the study framed within the dimensions of concept, methodology and experience.

Observations were compared in a number of ways to identify a concept of practice over a period of time (Mar 2004 – Oct 2008): -

\(^{31}\) EFD: epistemological frame of discourse
Within different sessions in the same TF meeting

Between sessions across different TF meetings

Between TF sessions and particular artefacts produced from these sessions (handouts, presentations, published reports of the gatherings)

Between TF sessions, their artefacts and field artefacts (job advertisements, general training articles)

Between various TF meetings and artefacts produced across these meetings (documents: handouts, presentations, published reports of the gatherings).

In observing and participating in these patterns of activity, the successive developmental phases of the activity system were identified and analysed as part of the object-historical analysis of how the object of activity in the TF (sharing practice, discussing training issues and networking) developed. This constituted part of the rigorous analyses of the activity system. Next, during theory-historical analysis, activity was further framed in terms of declarative concepts, procedural models and social discourses and interactions, using observations and discussions in interviews about its dimensions of practice (concept, methodology and experience). Finally, after an extended period of engagement within the TF, through this process of constant comparison, the conceptual-analytical framework was further developed and tested during actual-empirical analysis, as explained previously in Chapter 3, section 3.2.

Observations were also used to ask questions of fellow community members, both informally at meetings, and through pre-arranged interviews in order to understand the rules, structures, and processes or activities governing our interactions. By this means, the intention was to reveal and analyse the collective motives, goals and instrumental conditions within this community that affected practice.
Although the process of analysing data gathered longitudinally (over a period of five years) was continuous, it is explained in three phases of initial, exploratory and confirmatory research, each of which reflects the design of the study, in its three phases.

6.3.2 Phase 1 Initial method of analysis
In the first phase of the research, the construct of CoP guided descriptive analysis of the structure of the community and its domain. Practice was also framed as a structural element based on identifying certain behaviours as shared repertoires and shared resources such as particular language idioms, jargon or tools. In effect, observational data was analysed based on identifying the features and associated characteristics that suggest a CoP, as described in Chapter 2, section 2-6 and Table 2-1 (Wenger, opcit.:76):

- mutual engagement;
- joint shared enterprise; and,
- shared repertoire of negotiable resources accumulated over time.

These features and characteristics were then applied to the analysis of the community of trainers by way of thick description as part of the phenomenological exploration of the Trainers’ Forum and its activities, which constituted the initial analysis of the features of TF as an activity system. In addition, the criteria listed in Table 3-1 (Criteria defining CoP structural elements) Chapter 3, which Wenger also proposed (op.cit.:130–31), were applied to the TF to identify more specific features of structural elements within a CoP.

6.3.3 Phase 2 Exploratory method of analysis
In the second phase, an analytical framework representing the conceptualised dimensions of practice (concept, methodology and experience) emerged during the phenomenological exploration of the Trainers Forum. These dimensions constituted the objective regularities of practice (ORoP) observed in the TF. Methodology and experience were framed in terms of two differing core epistemological beliefs within the concept of practice, which operated as cognitive elements within the activity of training (i.e. as a process of information transfer or
as a process of inquiry/deliberation). These differences emerged within contrasting
epistemological frames of discourse (EFsD).

This conceptualised framework of the ORoP also formed the coding matrix for analysis of
multi-source data. That is, data gathered from TF artefacts, observations and interviews
were compared, coded, categorised and analysed progressively to develop this interpretative
framework. In effect, it was developed through three stages of analyses corresponding to
object-historical, theory-historical and empirical (Engeström, 1987) analyses of activity in the
TF.

6.3.4 Questionnaire data analysis

Descriptive statistics were used to present qualitative (categorical) variables gathered using
the questionnaire. For example, survey participants were classified according to particular
demographic categories, such as their educational background. Different proportions for each
demographic category were then tabulated accordingly.

6.4 Phase 3 Confirmatory method of analysis

6.4.1 Empirical analysis of the activity system (the unit of analysis)

How and why things happen the way they do were clarified through empirical study of
activity within the TF using Engeström’s activity system model to underpin interpretative
analysis. That is, the community was framed as a constituent within an activity system in
order to analyse its activities, division of labour and rules. Trainers were the subjects who
constructed and shaped the object of activity within this system depending on the tools
available to them.

32 Type of data and sources were outlined in Table 4-2: Methodological framework showing the approach,
methods and tools used to explore concepts at different stages of research, Chapter 4.
Questions guiding the identification of activity system elements in interview and observational transcripts are shown in Table 6-3. Identified elements and their contradictions were then coded according to the schema shown in Table 3-5 and Table 3-6 in Chapter 3.

Through modelling the TF as an activity system, various levels of contradiction were identified, then analysed (primary, secondary, tertiary and quaternary), as explained in Chapter 3, section 3.4 and Figure 3-3. Identifying and tracing the conceptual models that were partially imported into, and partially invented within, this activity system explained contradictions in terms of conditions that created and sustained this professional community. In turn, these conditions explained the enculturation of its concept of training practice.

Moreover, through applying CHAT in a conceptual-analytical framework, the concept of practice was analysed as a whole, in terms of trainers’ (subjects) concepts, methodology (artefacts/tools) and experience of training as a practice within the TF (activity and outcomes), by viewing it as an activity system with its own rules, community and division of labour.

Therefore, the conceptual-analytical framework of complex elements of activity constituting practice was formed through teasing out, classifying, re-classifying, categorising and organising the objective regularities of practice that emerged from observing Forum sessions and interviewing Forum participants. It was then applied, during the actual-empirical stage of analysis, to systematically code observational data gathered during sessions, as well as interview transcripts. Accordingly, conceptual models of practice used in the Forum (i.e. transmission vs. enquiry) were evaluated through features observed in session activity to typify procedural models and social discourses/interactions as either didactic monologue or dialectic dialogue. In total, 55 sessions lasting almost 50 hours were observed and analysed at 11 separate meetings of the Trainers’ Forum held over a period of 5 years. Collated data (from field notes/transcribed digital recordings) were then analysed to characterise

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Table 3-5: Codes for describing Activity System elements or contradictions
Table 3-6: Coding scheme for describing Activity System contradictions
35 declarative/procedural and social interactions/discourses concerning the object of activity
predominant conceptual/procedural models and social interactions/discourses in Forum activity\textsuperscript{36} to explain \textit{what’s happening around here} and \textit{why}.

Finally, in the next three chapters, phenomenological and empirical findings are reported and discussed, and supporting data is presented, about each of the elements of the Activity System of the Trainers’ Forum: subject (Chapter 7); community, DoL, rules (Chapter 8) and finally, object and tools (Chapter 9).

\textsuperscript{36} Table 8-5: Predominant conceptual/procedural models of practice characterising Forum activity
Table 6-1: Training roles, responsibilities, organisational tendencies and Demographics

### Responsibilities of trainer’s role

Current practice regarding course design i.e. autonomy to decide: Teaching & Learning strategies (classroom versus resource-based learning or e-learning; methods (PowerPoint presentations; role plays; case studies)

Current practice and experience of using evaluation tools (type of tools used or available for implementing evaluation strategies)

Common understandings of the concepts of reactivity / pro-activity

### Organisational tendencies

Current practice re evaluation strategies (levels commonly used and forms of assessment).

### Demographics

Characteristics of practitioners as:

- Subject matter experts (SMEs) i.e. qualifications / experience related to clinical research practice
- Professional trainers i.e. qualifications/experience related to training practice

### Characteristics of practice settings:

- Type: Pharmaceutical company (pharma); Contract Research Organisation (CRO); Independent Training provider (ITP)
- Size: micro/small/medium/large enterprise as per EU Directive criteria\(^{37}\)

### Key

Micro: A micro organisation refers to those with 10 or less employees (Liikanen, 2003).
An enterprise with less than 50 employees is categorised as small (Liikanen, 2003; Loecher, 2000).
A medium enterprise is one with at least 50 employees, and more than 20 (Liikanen, 2003; Loecher, 2000).
A large enterprise is defined as 50 or more employees (Liikanen, 2003; Loecher, 2000).

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\(^{37}\) Although there is no universally accepted definition for the size of a business, one criteria used by the EU is the number of employees (SBS Stats, 2004).
Table 6-2: Questions of epistemology – the nature of knowledge and knowing

<table>
<thead>
<tr>
<th>Interview schedule</th>
<th>Concept &amp; methodology of practice</th>
<th>Explorative questions</th>
<th>Epistemological aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is training?</td>
<td>How can/do we share our ideas to learn from each other?</td>
<td>Nature of Knowledge (certainty &amp; simplicity)</td>
</tr>
<tr>
<td></td>
<td>Concept, methodology &amp; experience of practice</td>
<td>What happens at the TF?</td>
<td>Nature of Knowing (sources &amp; justification: external/external; type of evidence/application)</td>
</tr>
<tr>
<td></td>
<td>Organisation &amp; processes:</td>
<td>Who runs the TF; how’s it run? What happens at the TF &amp; why?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Common interests: Who benefits – what do we get out of the TF? What motivates us to be involved at diff levels of participation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dominant interests: Who leads the TF &amp; why? (Who is perceived to have authority?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participation status: attendance record &amp; level of interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rules of operation</td>
<td>How does the TF work? Does it help us, and if so how?</td>
<td>Nature of knowing &amp; knowledge</td>
</tr>
</tbody>
</table>
Table 6-3: Questions guiding identification of activity system elements\textsuperscript{38}

<table>
<thead>
<tr>
<th>Activity (individual/group actions)</th>
<th>What sort of activity does the agent/interviewee refer to and which Activity System does it concern?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object(ive)</td>
<td>What is the purpose of the activity agents refer to or perform?</td>
</tr>
<tr>
<td>Subjects</td>
<td>Who is involved in the activity agents refer to or perform?</td>
</tr>
<tr>
<td>Tools</td>
<td>What means do they use or refer to in the performance of the activity?</td>
</tr>
<tr>
<td>Rules &amp; regulations</td>
<td>Do they refer to, exhibit or conform to any norms, rules or regulations?</td>
</tr>
<tr>
<td>Division of labour</td>
<td>Who is responsible for what, and are those rules organised?</td>
</tr>
<tr>
<td>Community</td>
<td>What is the environment in which this activity is being carried out?</td>
</tr>
<tr>
<td>Outcomes</td>
<td>What is the desired outcome?</td>
</tr>
</tbody>
</table>

\textsuperscript{38} Adapted from Mwanza and Engeström, 2005: 459