

EXPLORING THE DYNAMICS OF KNOWLEDGE IN PRACTICE: COMPARING BUNDLES OF KNOWLEDGE OF EXPERTS AND NOVICES

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Session A-7

Abstract

One of the streams which is gaining more importance within the knowledge management field is the one which focuses on the study of “knowing” which is inherent in action. By contrast knowledge and its types are conceded little attention. Drawing on the study of knowing and practice as a reference, this paper aims to explore how we know in practice or, what it is the same, which are the knowledge dynamics in action. These are key aspects which may help to reconcile both approaches in theoretical and practical ways.

Through the analysis of a case study carried out in a Spanish labor placement company, we study the practice of expert and novice practitioners with the objective of identifying the “bundles of knowledge” linked to this practice and how these bundles are articulated in action and evolve.

The first results have shown evidence that although expert and novice perform the same act, their bundles of knowledge and their concept of the activity are not the same. Even more, the expert seems to be the one who is able to reframe or reinterpret his practice. These findings have made us reflect about the theory of expertise and how experts become experts which are aspects intimately related to knowledge types, knowing, practice and learning.

Keywords: Knowledge Types, Knowing, Practice, Expertise, Case Study.

Exploring the Dynamics of Knowledge in Practice: Comparing Bundles of Knowledge of Experts and Novices

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Suggested Track: A: Managing Organizational Knowledge and Competence

1. Introduction

Recently, the current business scenario and the academic field have conceded great attention to the study and management of knowledge in the organizations. During the course of the last decade, scholars have been beaver away in order to frame theoretical approaches which sustain practical initiatives. In other words, to inquire about “knowing” (e.g. Lave and Wenger, 1991; Blackler, 1995; Cook and Brown, 1999; Orlikowski, 2002; Brown and Duguid, 2000; Newell et al., 2002). This approach involves the study of action, and therefore, practice and it implies considering its collective dimension, the coexistence of learning and action and the context in which it takes place. Its main focus is the work practice and by contrast, knowledge and its types are conceded little or no attention. Learning is not just described as the result of a cognitive process but as a phenomenon which derives basic properties from its context. In other words, learning is situated (Lave and Wenger, 1991). The practical field has also echoed these theories and some approaches of knowledge management are based on a social approach, fostering the communities of practice of the organization and paying special attention to organizational culture (Alvesson et al, 2001).

Drawing on the study of knowing and practice as a reference, we consider that the fact of disregarding knowledge and its types has prevented researchers from studying the interaction between different knowledge types and knowing. How we know in practice or, what it is the

same, which are the knowledge dynamics in action are key aspects which may help to reconcile both approaches in theoretical and practical ways.

In 1999 there was an important attempt to overcome this shortcoming. Cook and Brown (1999) making a distinction between the “epistemology of possession” and the “epistemology of practice”, have defended the interplay between knowledge and knowing coining the term “generative dance”. According to these authors, the epistemology of possession is focused on working with the four categories of knowledge, analyzing their properties and characteristics. In contrast, the epistemology of practice is concerned with human action, with knowing. The interplay between knowledge and knowing and doing is the origin of the so-called “Generative Dance” (See figure 1).

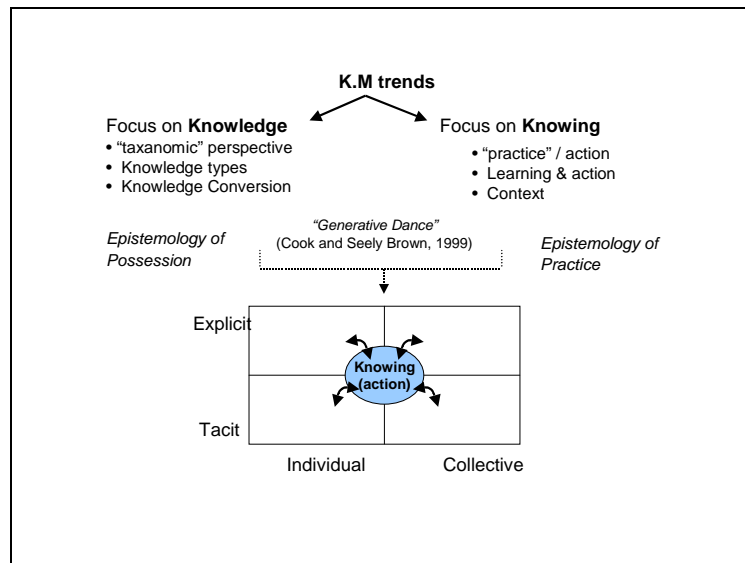


Figure 1

Cook and Brown (1999), retaining a distinction between types of knowledge, argue that the four types of knowledge are independent and conceptually distinct but complementary as each of them plays different roles when individuals act. Knowing and doing occur at the same time, and the different types of knowledge that the individual previously possessed, play a role. As a result of this interplay between knowledge and knowing, new knowledge and new ways of knowing, and therefore acting, are created regardless of the type of knowledge involved.

Cook and Brown’s theory is a good framework to study the interplay between knowledge and knowing or, what it is the same, between knowledge and action. However, taking this theory as a standpoint some questions remain unanswered: How do these types of knowledge articulate in practice? Do all types of knowledge influence a certain practice in the same way? How does the bi-directional arrow between knowledge and action work actually?

On one hand, Cook and Brown highlight the fact that different types of knowledge are combined when we are acting but no more explanation is given about how this combination takes place. The matrix presented in the model (see figure 1) assumes that every type of knowledge influences practice in the same way and that they have the same importance independently of the idiosyncrasy of the practice. Contingency aspects related to the practice and other variables like the organizational structure (Lam, 2000) may exert influence on the combination of different types of knowledge in practice.

On the other hand, Cook and Brown defend that while acting, the actor is getting to know which explains the bi-directional arrow, but how? How does the knowledge bundle evolve? How is learning therefore articulated?

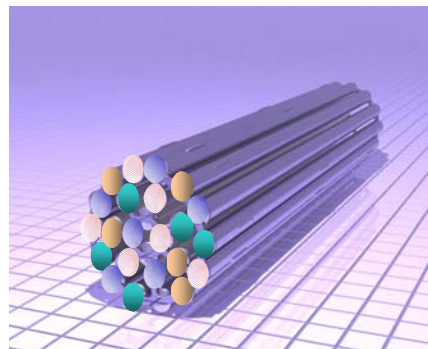
Taking all these aspects into account, we believe that a deep reflection about how we know in practice can help to shed light to many current aspects that remain unsolved. On the one hand, if we are able to clarify what happens when practitioners are acting, we will be able to discover if it is a question of learning first and applying or the kernel is the knowing aspect and the practice. On the other hand, it will help to clarify if knowledge is needed to be transformed –if possible- in order to be ready to use in action or not. This would bring to conclusions which could help scholars to shed light to current discussions about knowledge transformation. Finally, this inquiry would affect the conception of knowledge management in the organizations. Many current knowledge management approaches focus their efforts trying to capture, store and therefore apply that knowledge but the question of how practitioners perform their daily practice has been conceded little attention. If this issue is clarify it will help managers to design appropriate systems and better learning policies.

The main objectives of this research are exploring action and inquiring about knowing and the dynamics of knowledge. In order to delve into this issue we study the practice of job placement in an unemployment service company, sustained by the belief that in practice the combination of different expressions of knowledge constitutes a “bundle of knowledge” and paying especial attention to the comparison of bundles of knowledge of experts and novices.

2. Bundles of Knowledge and Expertise

Drawing on Cook and Brown’s model we consider that in practice the combination of different types of knowledge constitutes a “bundle of knowledge” (see figure 2). We know its ingredients but we do not know its different forms, combinations or shapes. Another metaphor would be a palette of primary colours (different types of knowledge), which are combined forming a picture (the action). Different pictures may have different combinations of colours and different shades.

Bundles of knowledge in Practice



Colours reflect different knowledge types

Figure 2

Taking Cook and Brown’s (1999) concept of “generative dance” as a reference this paper explores the concept of “bundles of knowledge” linked to the job placement practice and the knowledge dynamics. We will explore how these bundles of knowledge are articulated in action and the different roles or influence of different expressions of knowledge in practice and how acting makes vary the existing stock of knowledge facing therefore a learning situation.

In order to answer, this study includes comparing the practice of experts and novices in order to analyze their bundles of knowledge and identify, if it is the case, similarities and differences. The reason for comparing experts and novices is a good way to approach the

problem. On the other hand, it has been a relevant topic for many years which has been approached from a purely, cognitive perspective.

Studies about experts and novices are not new in the literature and it is specially relevant in organizational learning studies. For instance, Lave and Wenger's (1991) idea of "legitimate peripheral participation" is about the relations between newcomer and old-timers and how apprentices become legitimated in a working group. The relations between both, newcomers and old-timers, have also played a crucial role in the study of communities of practice (e.g. Wenger, 1998), knowledge sharing in workgroups (e.g. Levine and Moreland, 1999; Gruenfeld et al., 1999) or in the analysis of behavior in novel unfamiliar settings (e.g. Fuhrer, 1993). Laufer and Glick (1998) analyse the differences in cognition and activity between expert and novice in the telephone selling practice. In this case, it was made evident the fact that individual motivation plays a crucial role in the way expert and novice perform their tasks. However, not much has been said about the "knowing" experience of experts and novices in practice. Another reason to study and compare the practice of experts and novices is the fact that we assume that it allows us to identify more easily the tacit expressions of knowledge, as these are strongly linked to experience. Under this assumption, identifying and analysing these tacit expressions are supposed to be a crucial aspect to understand how they influence practice and the role they play in the composition of the bundle of knowledge.

3. The Case Study

3.1 Organization and Research Methodology

The object of our study is a public employment service company. This company delivers different services to the citizens in order to help them to find a job and at the same time to help local companies to find the best candidates.

All their services are free and according with its social commitment, they include programs for people with disabilities, minorities, immigrants, older workers, young people and women. Taking into account the characteristics of the city –manufacturing area- and of their citizens, most of the job offers are blue-collar jobs. Some distinctive features of their service are that no temporal jobs are offered and they get away from the typical public service which is characterised by offering an unpersonalised service and where the job placement service is just based on crossing data of job offers and candidates. Their aim is to offer an integrated and customized service to the unemployed and local companies.

In this case study the collection method includes direct observation and in-depth interviews. The direct observation is based on data from four working days of the practitioners of the job placement department in their daily work. During this phase we accompanied an old-timer and a newcomer in their daily routine, including eight interviews to unemployment citizens. After observation, an in-depth interview to both, expert and novice were conducted in order to inquire about their practice. Data were collected through tape recordings¹, researcher's observation notes, analysis of company documentation and tools and photographs. Table 1 offers a summary of the collection methods which were employed.

¹ 21 hours of recorded data.

Table 1 - Research Objectives and Data Collection Methods

Objectives	Documen- tation	Direct Observation	In-depth Interviews
- Understanding Practice		✓	✓
- Comparing practice of expert and novice		✓	✓
- Role played by explicit documentation	✓	✓	✓
- Getting understanding of the particularities of the case	✓	✓	✓

3.2 The Setting of “Job Placement”: process and practitioners

The “Job Placement” process starts when a citizen comes in seeking for a job. Then he (or she)² is interviewed by specialized “technicians”. These “technicians”, as they are called within the company, are psychologists or sociologists whose main tasks comprise discovering the candidate’s professional and personal profile, his motivations and expectations with a view to identifying employment opportunities. Then they counsel him in order to adjust their requirements with the reality of the labor market. Afterwards, the candidate’s data is introduced in the database and he will be considered for forthcoming offers. If the technician considers that the citizen is autonomous enough, he is offered a complementary service³, which provides him with the resources and counselling to look for a job himself (see Figure 3).

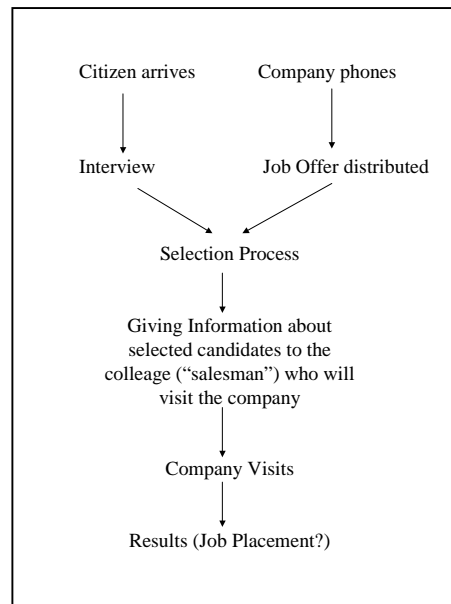


Figure 3: Job Placement Process Overview

² Henceforth the masculine form subsumes the feminine one.

³ This service is called “Aula Oberta” –AO- which stands for “Open Room” and indeed it has their own location and facilities. It consists of a room where there are computers, telephones, fax, magazines, newspapers and other resources to help the job-seeker to find a job by himself. Besides these facilities, a technician is in charge of counselling the citizens in order to help and support them in this searching process.

Meanwhile, companies looking for employees phone the company and present job offers. Then, the selection process starts. Each specialist who has interviewed the unemployed try to find the best candidates for the job among the group of people he has interviewed with the objective that at the end one of his proposed candidates will be accepted. After this selection, each technician “sells” his candidates to another colleague of the department whose main task is going to the company and selling each one of the candidates. According to the policy and strategy of the company the final objective is to help the unemployed find a stable job as fast as possible.

3.3 A Vignette from the field

In this section, we shall present a vignette of work in the field, describing in some detail one subprocess of the Job Placement practice performed by both, the expert and novice. This vignette is meant to understand the subsequent discussion of how we know in action and the comparison between expert and novice.

The situation described is typical of any day of work in which job applicants are selected for an offer and comes from direct observation. According to the general process of job placement (see figure 3) this part of the process is done once the unemployed citizen has been interviewed by the practitioner and a job offer arrives. Then, the practitioners have to look for the best candidates and present them to the person –the salesman- who will go to the company with the selected candidates.

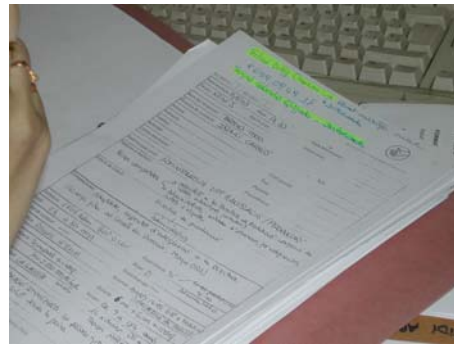
The vignette is purely descriptive and in italics. At the end of it a commentary section is presented in order to facilitate understanding. This commentary section includes comments and explanations given by the same practitioners when they were interviewed after the observation stage. This will prepare the path for the presentation of the subsequent analysis and conclusions.

Vignette- The Job Applicants Selection

- 1 *13:15 Back in the office after the interviews the office is full of noise and movement. It is like a busy beehive. The practitioners have several papers on their desks and they are making several phone calls. They are selecting candidates.*
- 5 *The expert looks at the photocopies of the open job offers on her table. She takes one. There are some handwritten notes on the photocopies. These are details about the job offer that she asked for from the “salesman” who is in charge of receiving most job offers and visiting the company in order to “sell” the candidates. The company is looking for female phone-operators. She looks at her list of female candidates. Half of the list is typed and half of it is handwritten. She reviews the list looking for possible candidates for the offer.*
- 10 *Apparently, she has found one possible candidate. She writes down her name at the top of her photocopy of the job offer, looks for the candidate’s record in the database and reads the “Observations” field which is the open field with unstructured information about the candidate. She looks up the phone number and phones the candidate. She explains the job offer to her, making some references to information the candidate gave her during the interview. She explains the type of job, the working environment of the company and finally she asks the candidate whether she is interested in it.*
- 17 *The unemployed citizen is interested in the offer. The expert hangs up the phone and marks her name at the top of the offer with a bright marker. She also enters that information into the database so that she can follow up the different events and encounters with the citizen. She looks again into her handwritten list of unemployed women. She finds another possible candidate for the job. Writing her name at the top of the job offer she starts the process again....*



Photograph 1: The expert selecting candidates, phoning them and preparing the selling with the records and database.



Photograph 2: The photocopy of the job offer. Candidates who agreed to apply for the job are marked in bright colour.

13:30 **Salesman:** *Ok, can we start with the selling?*

The practitioners stop for a moment and nod their heads. The salesman says:

- 25 **Salesman:** *Ok, lets start with Company 1's offer. Who has candidates?*
Technician 1: *I have.*
Technician 2: *Me too.*
Expert: *And me.*
Salesman: *How many do you have? [referring to technician 1]*
Technician 1: *I have one*
Salesman: *And you? [referring to the expert]*
Expert: *I have three.*
Salesman: *And you? [referring to the other technician]*
Technician 2: *I have another two.*
Salesman: *Ok, who starts?*
Technician 1: *Me....*
- 36 *While technician 1 presents his candidates, the expert informs the technician from the AO service that the selling is starting and asks him to look for the files on her three candidates. The expert looks over the files and discusses the candidates with the AO technician. The AO technician, who has taken a stool and sits next to her, adds the last details that he has on the candidates.*
- 45 **Salesman:** *OK, who is next?*
Expert: *We are. This is a candidate we already proposed for the offer of Company XX. Anna P. G.*
Salesman: *Her surname?*
Expert: *G.*
Salesman: *OK [the salesman looks for the file with the previous selling information he had about this candidate for the previous offer]*
Expert: *When you hear me I'm sure you will already have heard us talk about her... She is 43, married, with two big children. I'm telling you this quickly because it's not of interest but just so that you know it... This woman was referred here by Mr. M, the councillor, and she has a certificate showing her to be 56% disabled, due to two slipped discs, for which she had an operation, and that this prevents her from continuing to work as a cleaner, which is what she was doing before. Her family situation is fairly precarious at the moment because her husband is in an association of taxi drivers and they have a coach... They bought it and they are still paying for the coach. Her husband only receives a minimum of services now and they are finding it very difficult to meet the expenses that they have. She is therefore in great need.*
- 57 *Despite her situation I see this lady as a great fighter. She said to me "I've been working since I was 12 and I've never worried about getting my hands dirty. But the situation now has got out of hand." And, I don't know, she's finding it difficult to find her feet again.*
- I can see that she has come to AO thanks to her insistence, because she really wants to work. She shows a lot of interest. For example, she has shown an interest in the*

Internet, which Vanessa [Vanessa is the practitioner in charge of the AO service] has been explaining to her, and from what Vanessa said she has done quite well. Although she said that at home she had already tried it... but even so, the course went very well, and she learnt very quickly.

66 *So, what has happened to her? Because of the slipped disc she can't do handling tasks either, because what happened is that when we presented her to the company XX she obviously has to be sitting down and moving around and of course, in the company they told her that they can't give her a stool, because if they gave her one they'd have to give everyone one.*

70 *She doesn't have experience in this area but I think that she has good communication skills, for speaking and getting on with people on the phone. She has her own skills which will help her to get on. Right...*

She has always been active, right. She has accepted anything that we have offered her, even with a miserable salary, because the truth is that we have presented her for salaries of 70000 pesetas and that she accepted and now she is looking for a part-time because she knew that otherwise they wouldn't accept her.

Salesman: *Why is she looking for a part-time?*

Expert: *Because, of course, it's not that she gets tired but she can't do very long days.*

Salesman: *OK, that's it.*

80 **Expert:** *Listen. Before coming here she was in a mental health centre because of a depression. The first time she came. Then A [A is other practitioner] contacted the mental health centre to see which psychologist and doctor were looking after her. She contacted them and the doctor recommended that she should look for work, that she was completely all right. Just so that you know.*

85 **Salesman:** *You don't want me to put that down, do you? [referring to the written report that the salesman gives the company on the candidate during the interview to present the candidates]*

Expert: *No, no. Don't put anything. It's just so that you know.*

Afterwards, the expert continues with another candidate. However, after proposing her candidates to the salesman she remarks:

90 **Expert:** *Well, I don't think that either Anna or Mary will leave them in the lurch because they really need it...*

The expert goes back to her own research for other job offers. She works with the database and stops when she hears something interesting. Now it is the turn of another practitioner who will propose his candidates to the salesman. While the technician is proposing his candidates, the salesman types a written report for the company explaining the key aspects of the candidate. This report and the CV of each candidate will be given to the company in the company visit.

Salesman: *Ok, who is next?*

Novice: *Me. S. P., Elise.*

Salesman: *Repeat the name please.*

100 **Novice:** *Elise S. P. [the salesman types in the name]. She is 34 years old. This girl has been with us for some time, right? She has been in different stages. She has great difficulty in finding work. She has a 52% disability.*

Salesman: *Does it show?*

Novice: *Yes, and moreover it's really obvious, OK? It's a physical disability, she has a very bad sclerosis, if I remember well.*

Salesman: *(...)*

Novice: *An arched spine. And she's rather short, she's got a bit of rickets. She's very short, almost like a dwarf, well, very short, it's true. She's like very thin, well no, well, she's 52% disabled.*

110 **Salesman:** *But is it because of that disease that she's so short too?*

Novice: *No. I don't know. I don't think she has any disease in particular... So, of course, she has to find work of this type, as a telephonist. She's looking in the*

administrative field. She's very willing. She's training. She works very hard. She really has a very strong fighting spirit. Life has closed a lot of doors for her but she plucks up her courage and keeps going...

She's been coming to AO for some time. She's persevering. The truth is I didn't see her in an administrative position because she had a very low educational level. She was studying English but, of course, learning English in a language school... She had very few expectations of finding a job, right? Really very few. But, well, she's really very interested. She really wants the job.

120

She hasn't worked for some time. She doesn't have any experience in the sector because she had been working in textile companies.

Salesman: Right.

Novice: Right? Look, she's a very bright girl, as I told you, she's very willing. She gets involved in everything, very active, she is constantly training and she is bright, she has a lot of personality, that is, I think that if she has to sell a product and that she is given certain criteria, that she can do it well, right?

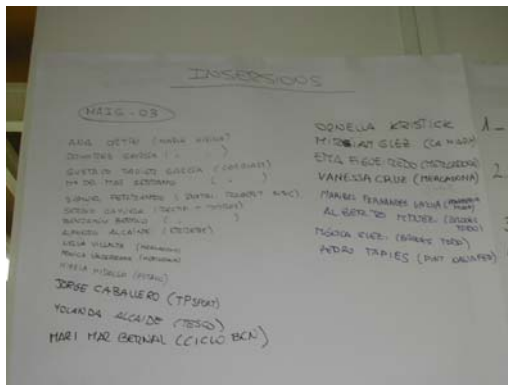
She had a small problem with our manager a few years ago. Apparently she was very sad, a bad experience, and she came here to look for work... and well, she's got a lot of personality and she will be able to... right? And she hasn't got a complex at all.

131

Salesman: Mobility?

Novice: She has a specially adapted car. Let's see if we can place her because the poor thing... it's been some time and we haven't managed to place her.

Salesman: OK.



Photograph 3: Monthly Job Placements Wall poster Job with the name of the candidate and company



Photograph 4: Section of the Wall poster the where Offer Forms are hung

135 9:00 the following day.....

The "salesman" has just arrived. A newcomer asks him about the results of a specific job offer. "It's decided –he says- they chose E's⁴ (candidate)". The other practitioner inquires more about what happened with his own candidate. Everybody has stopped working to listen to the salesman. He explains the details of the meeting and explains that after having interviewed E's candidate, the manager of the company was so happy with him that he did not want to interview anyone else. "Ah, that's the reason. Otherwise he would have chosen mine". The newcomer jokes but he seems a bit disappointed. On the contrary E seems really happy and communicates the good news to her colleague from the AO service... The name of the candidate and the employer company are written on a paper on the wall with the list of all the job placements achieved during the

145 month (see photograph 3).

⁴ "E" stands for "Expert"



Commentary

When a company is looking for an employee, the information about the post is collected in the “Job Offer Form” (see photograph 4). Then it is photocopied and distributed among the technicians who start the search and selection of the best candidates for the offer. Afterwards, they have to tell the relevant information of the candidate to the salesman who writes a report of the candidate. This report will be very useful when the salesman visits the company and presents each candidate. At the end of the meeting, these reports and the candidates’ curricula vitae will be given to the firm and the job placement process continues.

In the first part of the vignette, our expert was proposing her candidates to the salesman (lines 36-91). For the expert, proposing candidates is not an individual activity but a group task. As seen in lines 36-40, she searches for more information and details by asking other technicians. These technicians are the ones who provide them with support services (AO service) while they are looking for a job and see the candidates on a regular basis. Using her and their information it is possible to tell a story full of details.

Researcher: But, for example, you talk a lot with Vanessa, or Vanessa talks a lot with you? Is that right? [Vanessa is the practitioner in charge of the AO service]

Expert: I share a lot with her and she shares candidates who come to the Aula Oberta with me.

Researcher: And why doesn’t she share with X? I have never seen Vanessa discussing a candidate with X or with M, ...[X and M are newcomers]

Expert: All right. Firstly it’s the situation, because I don’t know, because she sits next to me, and because I look for her and she looks for me too. I think its reciprocal. I get up to say «Listen, I’m going to call this candidate, what do you think?» I want her feedback because she sees them as well and knows them. Listen, well, I’ve shortlisted him as well!», that is, well, if there’s a better exchange between us, but she helps me and it helps her too, well, I do it. She doesn’t do it as much, I know it’s true, with X and with M.

....But the thing is we often do shared sales. That is, I’m selling her, and she is next to me also selling that person, [see photograph 5] adding some information. I say to her: «Vanesa, come here, let’s sell...»... It’s an exchange of information that comes out in one way in writing, but that spoken comes out a different way, I suppose you put a feeling into it, better or worse, but well you are expressing things in words.

In order to give the required information to the salesman, the experts designs a story taking into account what she remembers from the interview (relying on the information from the database) and the input of others technicians. This previous “preparation” is crucial because, afterwards, the expert starts telling the story and she will not read or look at any of the documents or information about the candidate.

The salesman listens to her very carefully only interrupting when he wants to make further inquiries about something (lines 77, 85). Citizen’s quotations decorate the story (line 57-59). According to the expert, the use of anecdotes (lines 62-65; 67-69) and quotations from the citizen and the storytelling help the salesman to “remember” and feel confident about a candidate that he has not seen before. For the expert, that is the key:

“Sometimes I personalize quite a lot. I mean I get inside the skin of that person... that citizen, I sell a lot of them, and I try to give more so that S⁵ What do I do? First the good side, I talk to him about the person and Vanessa already knows it, you can

⁵ S is the “salesman” who goes to the company to present the candidates.

tell me later about handicaps, well, handicaps, that's the negative part, and I want you to know it, but do you know how good this candidate is.

I mean, I don't want you to go to the interview saying that... No, you must be sure that you are selling this candidate. So I'm telling you, I always leave it for the end as an extra detail, but the important part is the rest.

I want that person to be accepted and for them to get a job. Well, I suppose that (...), even S, when I sell someone to him, I explain specific situations from the interview to him, on some occasions that I can recall and that I have jotted down: «Ornela (...) is (...) the language», she is a valid girl and she deserves it because she worked hard for it, but well, she was a great girl.

So, well, I explained all of this to him, the anecdotes. Even in that sale it was also another technician, who said: «S, remembered specific things that you had explained to him», as, well, they helped her to remember that candidate (...) This means that it was strengthened. Indeed, he told me «It was very useful that you explained that in particular about that man to me, as it helped me remember him».



Photograph 5: Selling the candidate: the expert, the technician in charge of the AO service and the saleswoman.



Photograph 6: A novice giving the information to the saleswoman who is typing the written report of the candidate for the company at the same time.

At the end of the vignette, the novice is also proposing one of his candidates to the salesman (lines 98-134). The novice is more worried about giving objective and technical data and he gives the information mainly reading from the database. As he says: *“we don't hide information from S, but you do have to be skilful when it comes to presenting certain things. I can't say that «he's dubious», I can say it at the end with synonyms, ..., because, otherwise, you know that it conditions them.”*. Despite this comment, the novice sometime hides bad information that can be a handicap for her in order to find a job. For instance, in the situation of the vignette he did not explicitly explain the real situation of the candidate. In the written report it is stated that this is a problematic woman who causes trouble. He tackled this issue (lines 128-131) but he was not clear enough. These aspects may be explained by the same novice who defines this stage of the process in the following way: *“it's a game, I mean selling is a game of power, of convincing...”*. According to him, he should convince the salesman that his candidate is a good candidate for the job offer.

His way of proposing candidates to the salesman is individual. He does not collaborate with anyone else (see photograph 6). He is unaware of the key information the salesman is looking for and the information is not presented in the best way. As a consequence the salesman interrupts the novice quite often (lines 103; 106; 110; 131). There can be two reasons. Either he does not understand what the novice is saying or he lacks key information.

Being conscious that he should convince the salesman, he explicitly states that his candidate is a good one but without giving sound reasons for this judgement (lines 125-127) and he even appeals to the salesman's emotions in order to make him pity the candidate (lines 132-133).

Both the expert and the novice agree that the selection and the subsequent presentation of the candidate to the salesman are crucial for the successful job placement in the company. Indeed, results are the best way to identify experts according to the workgroup. As one of the novices says "*E is the one who places the most because she is able to gain his trust*" (referring to the salesman's trust). This last aspect will be a key to success. And as previously mentioned, according to the novice "*there is a game, I mean selling is a game of power, of convincing...*".

Everyone in the group recognizes that E, our expert, is much more successful than the others. Taking into account that each practitioner is in charge of placing his own citizens (the ones who have been interviewed by him), there is somehow a rivalry or competition among them (lines 135-145). So, why is the expert so successful? And what are the main differences between the old-timer and the newcomer? The comparison and analysis of expert and novice's practice will be tackled in the next section.

4. The Case Study Analysis

After having presented the field data we should turn attention to the objectives of this research. This research aims to explore the concept of "bundles of knowledge" linked to the job placement practice and the knowledge dynamics. Inquiring how these bundles of knowledge are articulated in action and the different roles or influence of different expressions of knowledge in practice and how acting makes vary the existing stock of knowledge facing therefore a learning situation are key questions that remain unanswered.

The empirical data allows us to analyse all these issues. Presenting the findings of the analysis of the empirical work is the main objective of next sections.

4.1 Identifying the bundle of knowledge

Drawing on the fact that a "bundle of knowledge" is a combination of different expressions of knowledge used in practice, how is the bundle of knowledge used in the job placement practice constituted?

Flowcharts and process procedure, resumes, different forms (e.g. "the Job Offer Form") are all part of the documentation used by all the practitioners. They are used in practice because "*it is the general framework. They help you to realize what is your aim*". There are also written and implicit rules (e.g. organizational quality policy and transparency). Storytelling is also crucial for the practice. Through stories from the past or current situations, the practitioners share their experiences. These are really useful to learn about the companies and the marketplace, to discover and identify key variables for the selection process and for the interview. Taking into account Cook and Brown's model, storytelling, norms, rules and documentation are all expressions of explicit collective knowledge.

Having individual explicit knowledge is also important. For instance, many concepts used by practitioners are strongly linked with their university degree. For instance the novice often uses sociology terms and concepts which are different from the ones used by other practitioners who belong to the psychology field.

Personal skills are also important and they vary among persons. For instance the expert's skills employed in this practice are the empathy, a strong listening capacity, self-confidence, reading the unsaid and a strong emotional capacity that it is really useful when he wants to

win someone's trust. On the contrary the novice is less skillful in these aspects. This type of knowledge is the so-called individual tacit knowledge and it is rooted in "doing" experiences.

The knowledge of the whole system and the identification of different contexts are also important and used in practice. For instance, realizing that the citizen is an immigrant or a woman who does not work for a long time makes the practitioner choose different courses of action. Realizing these different contexts and their implications are key. Equally important are the different roles played by the practitioners in the interview. Not only do they gather information by they are also therapists, listeners, problem-solvers, advisers, detectives and at the same time they raise unemployed people's hope. All these aspects related to the context and genre of the practice may be considered as tacit collective knowledge.

Subsequently, we can say that indeed, different expressions of knowledge are used at the same time in the job placement practice. Figure 4 summarizes a provisional composition of the bundle of knowledge.

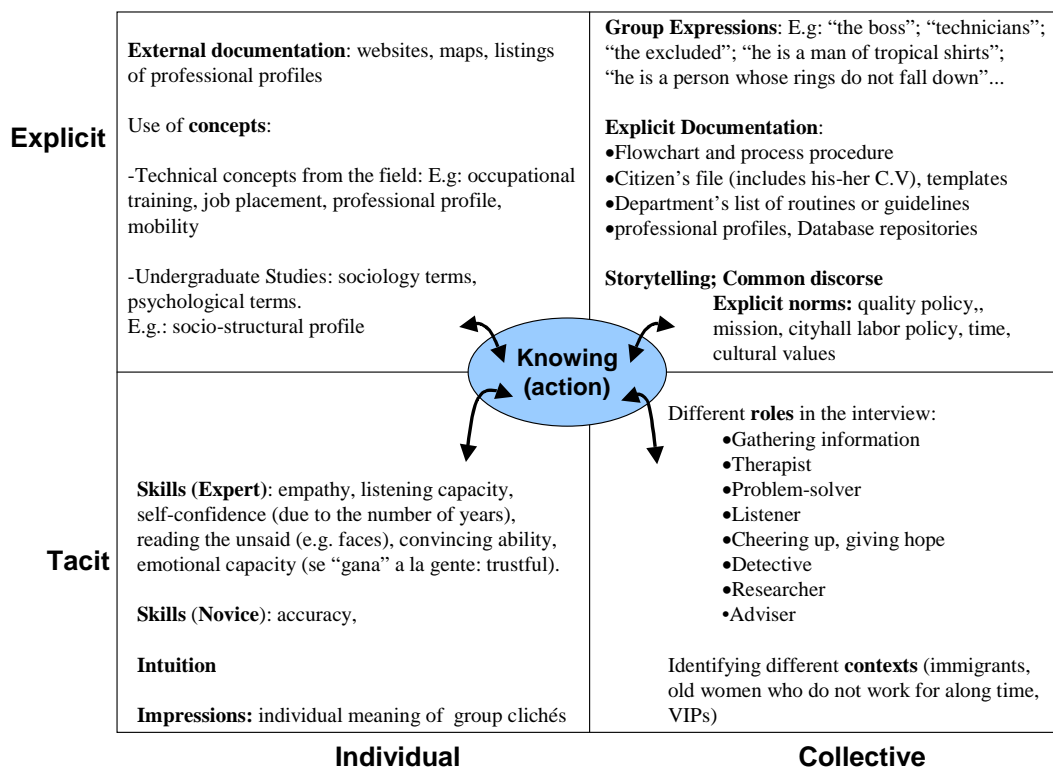


Figure 4

At the moment, we have identified the different expressions of knowledge used in practice. However, if we pay attention to figure 1 based on Cook and Brown's "Generative Dance" model, we realise that the arrows are bi-directional. This means that in practice we use knowledge, but simultaneously practice creates new knowledge. That is why practice is referred as "knowing", stressing the inherent dynamic relation and coexistence of both aspects.

In order to inquire about this bi-directional relationship, during the study we asked to the practitioners about the origin of some of their practices. There was some evidence that practice had been a knowing situation where learning had been taken place.

For instance, practice had created individual and tacit knowledge. Our expert's skills come from being four years in the same position in the company. When she started she was insecure and unable to convince anyone. It's the practice and the daily activity what have made her to be self-conscious and a convincing person, constituting a learning experience. The expert also uses many tips which come from doing, from the practice. For instance, as we have previously mentioned, she realised that the citizen lost attention. She was aware of it because she could see citizens looking to the ceiling, going backwards in the chair and so on. Then, she suddenly started reading loud incidentally and then she discovered that the citizen was answering her and correcting her if she had made any error collecting the data. Afterwards, she always read in loud voice.

Practice has also been the origin of some collective and explicit knowledge. For instance, the database fields were changed taking into account relevant aspects identified in the actual interviews. They also changed their common discourse of the explanation of the service. They realized that when they explained one of the rules of the service, there were several misunderstandings. The rule was that the duration of the service was six months and afterwards, if the citizen had not work or was interested in changing he should come back and ask for the service again. Looking citizen's faces and expressions the expert could realize that something wrong was happening. Then, he discovered that some citizens got a wrong idea: "In 6 months I am not going to find a job". Then, the expert and the other practitioners added another sentence to the general discourse in order to avoid misunderstanding ("we know that you are going to find a job before the six months but..."). They share this situation and now all of them have including this clarifying sentence to their speech.

Having identifying the bundle of knowledge and its relationship with practice, the next question is if all the expressions of knowledge play the same role or have the same influence over the practice. This is the next question to inquire into.

4.2 Novice and Expert: Do they perform the same practice?

Although the technicians share common tools and flowcharts where all the activities and their sequence are described, the data analysis have allowed us to realize that the actual practice does not always follow the same procedure.

For instance, in the final stage of the job placement process in which practitioners choose and propose the candidates, differences between the old-timer and the newcomer come to occur from the very first beginning. One of the main differences is that for the expert, proposing candidates is not an individual activity but collective. He searches for more information and details asking to other technicians. These technicians are the ones who provide them with support services meanwhile they are looking for a job and see the candidates in a regular basis. Using his and their information is able to tell an story full of details. "Telling the story of the citizen" is the way the expert gives data, wins the salesman's trust and helps him to remember. The experts designs a story taking into account what he remembers from the interview (relying on the information from the database) and the input of others technicians. This previous "preparation" is crucial because afterwards, the expert starts telling the story. The salesman listens to him very carefully only interrupting when he wants to inquire more about something. Citizen's quotations decorate the story. As a consequence, the use of anecdotes and quotations from the citizen and the storytelling helps the salesman to "remember" and feel confident about a candidate that he has not seen before. For the expert, that is the key.

On the contrary, the novice is more worried about giving objective and technical data and he gives the information mainly reading from the database. His way of proposing candidates to the salesman is individual. He does not collaborate with anyone else. He is unaware of the key information the salesman is looking for and the information is not presented in the best way. As a consequence the salesman interrupts the novice quite often. The reasons are double. Or he does not understand what the novice is saying or he lacks of key information.

He knows that he should convince the salesman but he is unaware that one of the key aspects is “helping the salesman to remember” the candidate. By contrast, he explicitly says how good or how needed his candidate is in order to appeal the salesman’s emotions and feelings. Table 2 summarises these findings.

Table 2 - Selecting candidates and Proposing them

Activities	Expert	Novice
Giving Information to the salesman	Getting data from the database (“Observations” field): database as a support	Getting data from the database (“Observations” field): reading from the database
	Discerns the information that he wants the salesman to know but he does not want him to write.	
	Discern the crucial information the salesman needs	Does not discern
	Gives many information not written there	Gives many information related with his work experience
Persuading the salesman how good his candidate is	Adds comments or sentences literally said by the candidates.	Use of expressions in order to facilitate the salesman understanding
	He is the one who decides when he has finished	The salesman keeps time
	Adds comments or sentences literally said by the candidates.	Says explicitly how good the candidate is.
	Add other technician’s comments about the candidate.	Trying to use how needed he is for a job as an argument (appealing to salesman’s feelings)
Helping the salesman to “remember”	Plenty of details to reinforce positive aspects but he also explains his shortcomings.	Does not exactly tell the shortcomings or negative aspects (disguising) (Unaware of it)
	Adds comments or sentences literally said by the candidates, anecdotes and so on...	



According with the data obtained in the observation phase and their subsequent analysis, we advance two conclusions. On the one hand, many aspects that entail the practice are not formally identified. Practice is much more complex than the one reflected in the corporate flowcharts and procedures. It is accepted that any representation cannot consider all the elements of the practice but the underlying suspicion is that these omitted elements are crucial (Bou and Sauquet, 2004). And on the other hand, although experts and novices share the same explicit schemes there are significant differences between them. Whilst the novice is worried about accuracy and objectivity, about following the procedure and the rules, the expert is focused on more sensitive and personal aspects and on understanding the situation. The expert leads away from the formalized scheme.

Data seem to point to similar analysis performed in the past (e.g. Brown and Duguid, 1991) in which practice was typified as canonical and noncanonical depending on whether the practitioners follow the predetermined procedures or not. The canonical practice groups all

the formal descriptions of work (e.g. procedures, manuals, job descriptions). The noncanonical refers to the actual practices of the organization's members. Brown and Duguid's discourse on communities of practice is strongly supported by their analysis of a gap between those formalized procedures and actual practice. In vein with these ideas, the novice is more focused on the canonical practice, meanwhile the expert is more focused on the noncanonical one. As a consequence the novice's knowledge of the system is mainly provided by the explicit information of the company (e.g. flowchart, rules etc.). On the contrary, the expert creates this system. He has internalized it and it is much more complex than the formalized system considered by the novice.

The concept of the activity is also different. The novice spends more time filling forms, obtaining data, analyzing it and it seems that he resorts to objectivity to support their decisions. In turn, the expert acts as though he is creating a story and he produces it in such a way that he is able to convince and make others to "visualize" the candidate and his situation. Ultimately, there is a clear emphasis on the expert side to be able to produce a coherent plot (Bruner, 1996).

Therefore, the novice is more focused on the canonical practice, meanwhile the expert is more focused on the noncanonical one. As a consequence the role played by the flowchart and process documentation varies among experts and novices. The novice resorts to the explicit information of the company (e.g. flowchart, rules ...) in order to know and work within the system. On the contrary, the expert reframes his job within the system. It does so by stressing that the focus of his job is "*selling his candidate*". The target of his persuasion scheme is the potential company employer.

Taking into account these findings, we can wonder if there are any cognitive reasons to explain these differences. Based on the theoretic framework mentioned in the introduction, in the forthcoming sections we aim to inquire if those differences between experts and novices have a relationship with different types of knowledge, if we can identify the relevant types of knowledge of the job placement practice, or what it is the same, the bundle of knowledge.

4.3 The Dynamics of Knowledge: Comparing Bundles

In the course of this study we have been able to identify the bundle of knowledge used in practice, which is constituted by different types of knowledge. However, the analysis shows evidence that the expert and the novice's bundles of knowledge are not exactly the same. The role and importance of the different expressions of knowledge vary among them. For instance, the old-timer's practice is mainly based on individual tacit knowledge (e.g. personal skills). Meanwhile the newcomer uses more explicit knowledge. Tacit knowledge is rooted on doing, on practice. The novice tries to replace the lack of experience-based knowledge with the explicit knowledge of the system, the procedure, and technical abstract knowledge (Figure 5).

This makes us think about two considerations. On the one hand the fact that the importance and use of different types of knowledge which constitutes the bundle of knowledge is not the same. On the other hand, we can focus on the relationship between the bundle evolution and learning. How does an expert become an expert? According to our case study, doing is the key. The daily practice is what makes vary the bundle of knowledge. It evolves through time. This fact makes us consider the simultaneity between doing, knowing and learning and therefore, consider knowing as part of action.

Finally, we can wonder about the way the expert's bundle of knowledge has evolved. Why tacit individual aspects prevail over others? One of the reasons may be the idiosyncrasy of this practice. The practice of job placement in this company involves uncertainty and a high level of complexity. This fact makes really difficult to trust on explicit artefacts to carry out the practice. This specific practice of job placement involves more persuasion than the use of technical objective reasons. It involves being aware of context and taking the best course of

action according to it. It is much more than following procedures, guidelines or rules. It is based on practice.

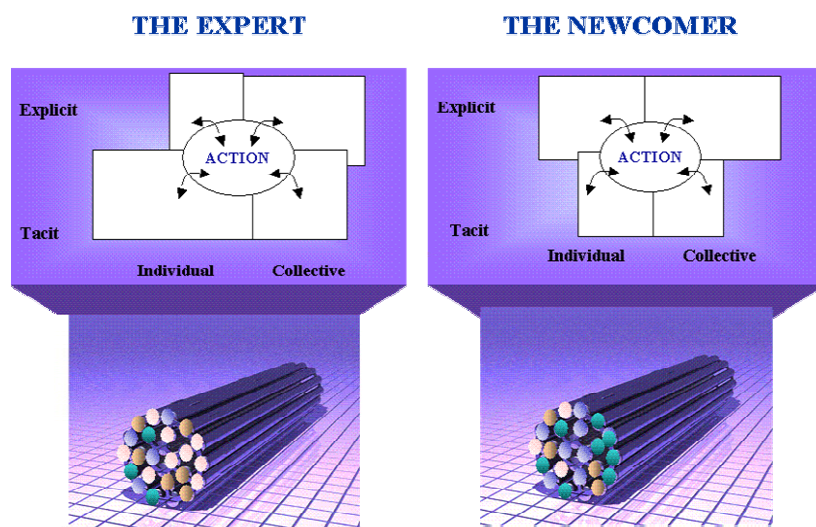


Figure 5: Different Bundles of Knowledge in Practice

5. Further Reflections in the Light of the Field Results

5.1 To what extent is Cook and Brown's model appropriate?

Cook and Brown classify types of knowledge based on epistemological –tacit/ explicit- and ontological –individual / collective- criteria. This type of categorisation is not new. Collins (1993) had already presented a classification of types of knowledge based on epistemological and ontological dimensions and as a result he refers to embedded (tacit-collective), embodied (tacit-individual), embrained (explicit-individual) or encoded (explicit-collective) knowledge. This categorisation has been also used by other authors (e.g. Blacker, 95; Lam, 2000).

This model has been a good framework to identify the different types of knowledge but at the same time, one of its shortcomings is that it is rather static. According to our provisional findings, Cook and Brown's model needs to be developed to acknowledge diversity.

On the other hand we have come to the conclusion that Cook and Brown's model fails to identify the role or predominance of certain knowledge expressions in comparison with others. In this case, we show evidence that for the same practice different practitioners rely on different types of knowledge. As forehand mentioned, individual tacit knowledge plays a prevailing role in the expert's bundle of knowledge. By contrary, the novice resorts to explicit knowledge –individual and collective- to carry out the practice. These findings offer us the opportunity to reflect about the transition from novice to experts and the concept of expertise.

5.2 Reflecting about the theory of expertise

How does a practitioner turn into an expert? What are the main differences between expert and novices? How can we define expertise? After having identified the existence of different bundles of knowledge between expert and novice, all these questions arise pointing an interesting field which requires further attention and inquiry.

In the light of the provisional findings of the case study analysis, although apparently expert and novice perform the same practice, indeed both are not doing the same action. First, they define their practice in different ways and second, whilst the novice focuses on filling forms, getting data and objective information and remembering all these data, the expert is much more interested on getting to know the candidate, creating an story and convincing how good his candidate is. He relies on hunches and impressions and tries to win's the trust of the candidate and the salesman.

Drawing on Schutz (1962) and his phenomenological approach, we could state that although the act –what is seen- is the same, the action is different. One of Schutz's outstanding theories is his study of action. Differing from his predecessors, Schutz defends that an action is not observable because it involves motives and purposes which are inherent in it and these aspects are not observable by the senses. According to Schutz the action is constituted by three elements. The purpose which is inferred and therefore, it cannot be observed. It is constituted by all the reasons by which the actor performs the action. It implies a desire to change reality. The mental project is also inferred. It is the mental process that the actor is going to follow in order to change reality from state A to state B. Finally, the act, which is observable and consists of the execution of the mental project.

As a consequence, Schutz states that when we are studying human action, we should consider certain elements which are not observable, like the purpose and the mental project. Hence, the study of human action should not be constrained to its observable element, the act. It will imply the study of the motives and intentions that are subjective and inherent to each actor.

Hence, action is affected on the one hand by our stock of knowledge, which gathers both practical and theoretical knowledge, and, on the other hand, by the motives of the actor and his scale of relevance or purpose-at-hand.

In our case, taking into account the bundles of knowledge comparison, we could state that the knowledge-at-hand of expert and novice is not the same one but at the same time their scale of relevance is different. We cannot state to what extent they are different but one thing which was evidence in the analysis is that the novice focuses on the canonical practice. He was much more worried about following the rules and procedures of the organization. On the contrary, the expert is more focused on the noncanonical practice. As a consequence, the two observable acts apparently seem to be the same, but they are two different actions with different knowledge bundles but at the same time with different scale of relevance.

Schutz's theory may help us to understand the different actions between two actors in general terms but the issue about experts and novices needs further inquiry. How does a novice turn into an expert? What does the expert in practice that is so distinctive?

Taking into account the literature, different authors have inquired into this issue and presenting different theories.

Schon (1983) taking as a reference the epistemology of practise, presents his reflective practitioner in contrast to the technical expert. His practitioner leads away from the technical rationality towards reflection-in-action. Technical rationality implies that intelligent practice comes about the application of technical knowledge which comprises rules, norms, models and scientific theories. This reflective practitioner escapes from the technical rationality and introduces their own elements in the problem-solving process. He reflects in action getting awareness of what it is happening. Based on Schon's theory, the expert is the one who reframes the practice.

At this stage Ryle's contribution can help us to shed light to this topic. Indeed, Schon's theory was sustained by Ryle's idea of intelligent action. Gilbert Ryle (1949) states that in order to perform a sensible action we do not have to think first and then act. Ryle stresses the idea that people do not think in a set of rules or procedures and then act, but in practice that it all happens at the same time:

" ...'thinking what I am doing' does not connote 'both thinking what to do and doing it'. When I do something intelligently, i.e. thinking what I am doing, I am doing one thing and not two. My performance has a special procedure or manner, not special antecedents."(p.32)

In Ryle's example of the clown (1949:33), he explains that "the cleverness of the clown may be exhibited in his tripping and tumbling. He trips and tumbles just as clumsy people do, except that he trips and tumbles on purpose...The spectators applaud his skill at seeming clumsy.....It is his visible performance that they admire,... for being an exercise of a skill. Now a skill is not an act". If we situate ourselves in this situation, what would be the difference between an expert clown and a novice one? The novice one will focus their attention on following the script, on executing the trips and tumbles as they have rehearsed. The expert clown will have also rehearsed before the spectacle but he will focus their attention not on applying and executing trips and tumbles but on making people laugh. He will be aware of the faces of the spectators and their reactions. He will be knowing because knowing in action is inherent in the intelligent action.

If Schon's expert reframes the practice, other authors stress the fact that experts redefine their practice. For instance, Laufer and Glick (1998) study the differences in cognition and activity between experts and novices in the telephone selling practice. In this case, it was made evident the fact that individual motivation plays a crucial role in the way expert and novice perform their tasks. The novices followed the protocol, they were focused on doing their job well and according with the company procedures. On the contrary, the main motivation of experts was earning more money which was based on obtaining many selling orders. That implied changing the procedure in order to focus on their main goal: selling as much as possible. The experts had redefined the telephone selling practice.

This findings are also coherent with Schutz's theory of action. In this case, the scale of relevance has changed and personal motives are prioritised over organizational purposes. The expert's internal motivations are the key in order to change the action and their performance in comparison with novices.

Finally, if we take the hermeneutic perspective as our standpoint, we would consider an expert as a practitioner entitled to reinterpret a practice which is taken as a text that has no evident meaning.

6. Conclusions and Further Implications

In the light of the different trends in the study of knowledge, we started this paper pointing some questions concerning different types of knowledge and its relationship with practice. After this initial stage of our in-progress research our data shows evidence that indeed, in practice we use a bundle of knowledge which is constituted by different expressions of knowledge. However, the articulation of this bundle is not stable. It varies among experts and novices and the contingent nature of practice. It is dynamic.

After the first results of our research exploring more deeply about the dynamics of knowledge and knowing in practice is worthy. The scope of the study has not allowed us consider some organizational aspects that may have an influence on it. For instance, Lam (2000) highlights how different types of organizational structures affect knowledge creation and Engeström's model (1987) stresses how rules, the new objects, the community, the division of labor and the different tools exert continuous pressure on the practitioners affecting the actual practice and their performance.

How experts become experts are also another interesting field to go on exploring. In the study we could identify and analyze the differences but we could not explore how the relations between newcomers and old-timers and their bundles of knowledge evolve through time. This

is a fruitful field of inquiry in which knowledge types, knowing, practice and learning are interwoven.

Finally, these results may be a trigger to start considering the practitioner as a reframer or interpreter of practice. The study of this issue may shed light to certain aspects of the knowledge management field, specially those which have a relation with the theory of expertise and knowing in practice. The effort of reflection is worthy.

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