How IT-guides support learning at work

A master project for the programme

Master in ICT & Learning

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This project focuses on how non-personal support products in the form of guides support the user's learning of a specific application in a work context. Users are employed in the general secretariat of the European Parliament whereas the application ITER is a central part of the legislative workflow. On the basis of a prestudy survey and subsequent tests performed by a group of users, the project discusses learning as well as design aspects of the guides in relation to those learning strategies, which the users apply.

Send a document to translation by using the PE-number

STEP 1

IT002
- click icon "document"

IT002

STEP 2

IT013
- click "search"

IT013

IT023
- type the PE-reference in the field "document reference like"
format : nnn.nnn (you don't have to type the letters PE in front)
- click "search"

IT023

STEP 3

IT107
- double click the document you want to send to translation
Pay attention to the version number

IT017

STEP 4

IT022
opens on tab "basic information"

IT022

Envoyer un document à la traduction en utilisant le n° de PE

IT002
- cliquer sur l'icône "document"

IT013
- cliquer sur "recherche"

IT023
- taper la référence PE dans le champ "Référence du document comme"
format : nnn.nnn (pas besoin de taper les lettres PE devant)
- cliquer sur "recherche"

IT107
- double clic sur le document que vous voulez envoyer à la traduction
Prênez attention au n° de la version

IT022
s'ouvre sur l'onglet "information de base"

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This project focuses on how non-personal support products in the form of guides contribute to user's learning of a specific application in a work context. More concretely these users are employed in the general secretariat of the European Parliament in which the application ITER is a central part of the legislative workflow: ITER plays a key role in the management of the flow of legislative proposals as well as handling texts sent to translation from the parliamentary committees.

Prestudy and final research question

The author for this project has a direct insight in the problematic of support tools via his work in a user-oriented support function for the ITER application. Hence the project has its offspring in an interest in investigating possibilities for differentiating non-personal support products (guides, web pages, and integrated on-line help). This interest has led to first conducting a survey based on a questionnaire among the user community; asking questions about the use of the on-line help functions in ITER as well as the use of the step-by-step guides on the ITER support web pages. Secondly, on the basis of the conclusions from this first survey, the project has got its final research question (see first paragraph) and hypotheses concerning the practice situation's influence on the learning process, the user's approach to drawing on support resources and on design as a support tool.

Empirical approach

This field is analysed by simulating a work situation in which a selected group of ITER-end users with different experience (newcomer, advanced beginner, expert) perform a routine task in ITER while using a set of guides explaining this task step-by-step. Each test is followed up by an interview drawing a thread from the experience of the test to the user's working practice and how the user draws on the available learning resources. Finally an alternative guide layout is presented for the user.

Theoretical approach and analysis

As what regards the learning dimension the analysis draws on the theoretical typologies from the work of Jean Lave & Etienne Wenger (*legitimate peripheral participation, communities of practice, teaching and learning curriculum),* Donald Schön (*knowing-in-action, reflecting-in-action, reflecting-in-practice*) and Hubert Dreyfus & Stuart Dreyfus (*five stages of skill acquisition*). This theoretical approach provides a method for categorisation of the user group related to its different members' experience in the work practice, as well as it provides a framework for analysing those strategies of learning which the users apply in their practice.

The design dimension is analysed by applying the model for visual communication developed by Lisbet Thorlacius. The visual analysis of the ITER guides is dedicated a specific chapter, as this analysis has a sole subjective approach (as compared to the analysis of the learning dimension). Design aspects are nevertheless also a part of the tests with user participation.

Conclusions

The outcome of the analysis supports major parts of the hypotheses, but not the whole set. In general the overall picture is more ambiguous, as the analysis reveals a complex field of work practice and learning resources, in which not only work experience but also individual personality plays a role with regard to how non-personal support tools help the user's learning.

1 Context

This thesis deals in general with those learning problems arising from the use of applications, specifically designed to generate and manage the document workflow in big organisations. More concretely I will focus on the application "ITER", which has been in use in the European Parliament (from here on "EP") since early summer 2004. ITER controls the legislative document flow in the EP by integrating the European Union's treaties[1] and the EP's rules of procedures[2] with the political work in the parliamentary committees. ITER's users consist of several groups from the administration EP's infrastructure – all having separate functions: The assistants of the committees make the long term planning according to directive proposals coming from the Commission, the secretaries perform the daily work of writing and up– and downloading, the translators translate to the 23 official languages and the Tabling Office plans the plenary session. In the principle everything is done in ITER.

Naturally such a complicated process generates problems – technically as well as cognitive. ITER has been thought and designed, as a "Total Solution" for the legislative document flow, but problems unthought-of of and constant changes in the procedures does not make the task an easy one. Permanent support is therefore needed in order to provide urgent help and improved technical solutions. At the same time one has to accept that there are organisational and financial constraints: A simple hypothesis based on common sense would claim that direct, personal support would result in the quickest solution every time a user faces a problem, but such an approach to user support is for the before-mentioned reasons not applicable. Instead we have to focus on how the common ITER user can be helped to help him- or her self.

My practical approach to this project is more concretely bound to the fact that I am employed in the ITER HelpDesk,[3] which deals with technical interventions and on-demand support to users on "how-to" questions above the basic level (as this type of support is taken hand of by the Professional Training and Assistance Service[4] in DG IPOL/EXPO (see chapter 3 "Empirical Research Method, paragraph 3.1 "Description of the Legislative Workflow").

[1] http://europa.eu/documentation/legislation/index_en.htm

[2] http://www.europarl.europa.eu/parliament/expert/staticDisplay.do?language=EN&id=56

[3] The ITER Helpdesk is formally a part of Directorate General Internal Policies of the European Union (hereafter DG IPOL), but serves users from all DG's working with ITER: DG External Policies of the European Union, DG Presidence, DG TRAD (Translation)

[4] Whereas the ITER Helpdesk deals with all ITER users, the Professional Training and Assistance Service in DG IPOL/EXPO only provides support to these two Directorate Generals.

My personal inspiration occurs from a curiosity about the common IT-user's practise, when he or she has to solve problems by using applications specifically designed as tools destined for a specific working situation.

1.1.1 Focus

At first I was convinced that the way ahead for reducing the complexity of this application and the organisational context in which it operates should be laid down by exploiting the full potential of the interactivity and hypertext format of web design. In order to further investigate this thesis I took the initiative (in cooperation with my colleagues in the "ITER-Team" - see paragraph 1.2.3) to carry out a survey among the ITER user community with this issue as one out of a few others of which not all were also related to support. In the survey users were asked to consider whether a "step-by-step" guide (manuals briefly explaining how to carry out routine tasks in steps) with links for screenshots would be an improvement in comparison with the already known "step-by-step"-guide, which is usually printed out by the user. Although one could raise criticism towards the survey's statistical validity the tendency was clear: Hypertextual guides would perhaps imply a certain improvement for some users, but it was not seen as a major improvement. Instead the result showed indications of a need for differentiating the support products towards the user's level of experience:

Hence I have had to change the focus towards investigating the link between user expertise and the provided user support in the shape of different textual and visual products: For merely practical reasons I exclude those support methods which are directly interpersonal: Taught courses and support implying the direct intervention of a member of the ITER Team by email, telephone, or personal help on the spot; not because these support methods cannot be differentiated towards the user, but because they draw on several resources, and not only a stand-alone designed product. Another reason for this approach is by the way financial: The more the user can be helped to learn him/herself, the less human resources would need to be allocated.

In order to so this thesis contains two strings:

One focusing on the user's learning behaviour and another focusing on how to differentiate support products; thus in the end incorporating the first string into the second.

This is expressed by the following research question:

1.1.2 Research Question

How can non-personal support products help the user's learning while using the application ITER?

Definitions:

"Non-personal support products" should here be understood as documents – virtual or physical - which in brief terms explains the context of a specific work task and how to perform it. Such documents could have the shape of longer manuals, shorter guides or explanations à la "Frequently Asked Questions" (FAQ) and they could be interactive or to be printed out or both.

Concretely I will focus on guides, because they are in practice the main support tool for ITER. I define guides as follows (while admitting that the border between guide and FAQ will always be fluent):

- Guides are meant for describing routine tasks, and a "step-by-step"-guide is in addition a very distinct guide, explaining exactly the details of how to perform a specific task. Ex: "3.05 Sending document to translation" (see chapter 9, Annexes)[5]

1.2 Hypothesises

In order to investigate the questions in depth I work with the following hypothesises:

1.2.1.1 Main hypothesis – concerning the practice situation's influence on the learning process:

- The concrete practice situation determines whether the user will use available support products or personal and attentive help. The practice situation is here understood as the task to be performed by the user and the context for the user in the given moment.

[5] In contrary to the above an FAQ may explain the reason for and way to deal with a specific problem, which might occur from time to time, but cannot be seen as a basic routine task. Ex: "Frequently Asked Questions" (see chapter 9, Annexes)

1.2.1.2 Hypothesises concerning the user's approach

The users in general view support products as being too complex and time consuming. The information is often not relevant enough to the task in question or it lists so many options that the user becomes confused. Being under pressure in a working situation the user prefers to seek personal help instead of using support products. [2]

1.2.1.3 Hypothesises concerning design as a support tool

- Adaption of the support product to the user's expertise level promotes the learning process
- Visual examples promotes the learning process related to the use of software

1.2.2 Chapter description

The order of the chapters in my project is to a certain extent a reflection of how this project has developed: From my initial idea of exploring how far you can get with interactivity and web design related to supporting ITER users towards a much more concrete focus on how the existing written support works and how it could be improved.

Having said that, all chapters have been through a process of drafting and rewriting; in particular during the time from the finition of the chapter about learning theory through the end of the tests.

1. Context

This is the chapter in which I describe how I came about the idea about writing a project about support products and learning related to the ITER-application. I also briefly describe the organisational context ITER is a part of in the European Parliament. In the end of the chapter I define my research question and set up my hypotheses for further analysis.

2. Epistemology

Apart from describing my decision process of selecting options for carrying out my analysis this is also a discussion of the usefulness of the Thinking Aloud-method.

3. Empirical Research Method

The first part of this chapter is a description of the context and the nature of the ITER user community's working tasks whereas the second part contains the user survey, which turned out to serve as a pre-study to the project.

4. Learning Theory

I present my theoretical approach as what concerns the project's learning dimension while drawing on Lave & Wenger, Schön and Dreyfus & Dreyfus.

5. Design

This is an analysis of the graphical layout of the ITER step-by-step guides while using Thorlacius' model for visual communication. The chapter does not lead to a concrete operationalisation of terms to apply in the user tests, but in chapter 7 (Analysis) I draw on my analysis in chapter 5 and combine it with my findings in the user tests.

6. Test Design

The concrete design of my tests, with a description of the task the user was asked to perform, the guides the user had to use, and the questions for the interview that followed.

7. Analysis

The introduction to this chapter contains a table of the terms from learning theory I apply for the analysis of my findings in the tests.
The remaining part of the chapter consists of the analysis itself, based on the transcriptions from the interviews. The main part of the analysis draws on learning theory, however, the design dimension is also discussed in the final part.

8. Conclusion

While first concluding in a concrete way on how the ITER user's learning process can be supported by the use of non-personal products; I also discuss my theoretical and methodological approach. Finally I attempt to draw up an outline for further studies of a support strategy for work specific applications like ITER.

1.2.3 Thanks

To my colleagues in the ITER team and the IPOL IT Functional team for their support and understanding when I have been unavailable for the daily work. Thanks in particular to Bart Lisens for helping with the technical layout for the survey form for the prestudy user survey, and to Jaana Hotakainen, who should have all the credit for the graphical layout of the step-by-step guides. And thanks of course to my tutor Marianne Georgsen, without whom I would never have been able to finish.

2 Epistemoligy

I have chosen to carry out my analysis with a qualitative approach. As a matter of fact it would not be possible to make it otherwise; investigating processes of learning requires a hermeneutical approach. On the other side, if you want to get a general picture of the user community you would need to apply quantitative statistical means. Such a picture would provide background material of the user community in terms of gender distribution, educational background, age, nationality and job function with supplementary questions to when support in form of personal help or by written support becomes necessary; all information which could be used for investigating whether differences in these parameters could have coherent influence on the process of learning. It is likely that such relations would be revealed; but I have decided to leave it out due to the workload such a survey would require. Instead I have asked some of these questions (e.g. about the context for seeking support) to the users during the test, but I am aware that the lack of a large descriptive survey makes it impossible to draw too firm conclusions at a general level.

Users have been picked out on basis of my practical knowledge about the user community. Through my job I get in contact with a wide range of these people, and I have thus been able to make a choice of whom to ask to participate while drawing on my knowledge about the specific user's job function and experience level. Although availability had to play a role as well in the process of picking out, I have been aware of the danger of myself having possibly "gone native" (see e.g. Silverman, 1993, p 49) as I qua working for the ITER support also have an inside knowledge of the composition of the user community. Hence I believe having avoided the possible danger of drawing on my own personal preferences for electing users with a behaviour suspected to prove my hypothesises.

The test design of this project has been developed in two phases (see also the introduction):

2.1.1 First phase: Prestudy

The user survey carried out in December 2006 was based on a combination of quantifiable closed questions and open questions for commenting. The response rate was low (8 %) so the result could be questioned on parameters of significance and validity; nevertheless it still gave indications of how the written support was used and in which direction it could be developed (see Chapter 3, "Analysis of answers to ITER User Survey on the On-line help, November –

December 2006"). Seen in retrospective the prestudy has first of all served as an eye-opener and as a contribution to my personal learning process. Secondly, however, the prestudy has also made me review my hypotheses as well as it provided the basis for the design of the user test; including redesigning a guide for testing purpose.

2.1.2 Second phase: Modified Thinking Aloud

The ideal way of investigating learning in practice and the guide design would be by carrying out a long-term ethnographical study in the office, where I as researcher would stay as observer, following changing work routines, listening to formal work related communication as well as in-formal; e.g. gossip between colleagues, etc. Unfortunately I did not have this possibility, which is why I had to carry out a test with a sample of users while simulating work practice.

Testing guides implies combining testing with the application ITER itself. Concretely the user had the guide in question next to her in printed format, and she followed the steps in the guide while performing them in ITER on the screen. During this process a tool recorded the movements on the screen - showing the manipulations in ITER. Immediately afterwards I played the sequence for the user while interviewing her at the same time; trying to dig under the surface about not only how it went with the task in question and to which extent the guide was helpful, but also by asking associative questions about the user's learning in general.

This method is a modification of the "thinking aloud" technique for testing HCI (Human-Computer-Interaction). "Thinking aloud" is widely used in testing HCI and among others advocated by Jakob Nielsen (see http://www.useit.com/papers/guerrilla_hci.html, 1994) as a valid and cost-effective method; in the paper mentioned before Nielsen argues that valid results can be obtained with small groups of testers.

With reference to the introduction to this chapter I will not commence a discussion about validity related to a qualitative approach; it is, however, necessary to mention some reflections on the results you get when applying "thinking aloud". I will in particular draw on the arguments in a working paper by Janni Nielsen, Torkil Clemmensen and Carsten Yssing: "People's head, people's mind? – Theoretical reflections on thinking aloud", (Institut for Informatik, no 11, June 2002). In this paper the authors argue that if thinking aloud is applied as originally intended (quoting the work of K.A Ericsson and H.A. Simon, 1984); that is letting the user explain verbally what he/she is doing while performing a test of a computer interface; then you do not get what you are after, as

"The technique puts a cognitive load on the user requiring a cognitive involvement that may interfere or even compete with the cognitive requirements of the interaction or the tasks"
(Nielsen et al p. 4, 2002)

According to Nielsen et al the main problem with the classical approach of thinking aloud is that it conveys a reductive image of cognitive processes by believing that thoughts can be verbalised. Hence the authors draw on the work of Polanyi, who in his exploration of the notion of "tacit knowledge" takes as starting point

"the fact that we can know more than we can tell" (Polanyi, p 4, 1966)

What I find particularly interesting is when they mention the notion of "*tactile cognition"*: When describing how perception work towards an artefact, they conclude (using Polanyi) that it is a subsidiary process of consciousness; that

"*the objects of our conscious attention lie predominantly outside ourselves"*
(Nielsen et al p. 10, 2002)

While coupling this statement with a discussion of the notion of tacit inference; including a discussion of *"awareness"*:

"We should notice that there are two kinds of awareness. We may be aware of things without focusing our attention on them – this is a from awareness. We may also be aware of things by focusing on them – this is focal awareness."
(Nielsen et al p. 10, 2002)

they conclude, that

"*meaning lies outside ourselves – in the integration of the subsidiaries (and remember this process is unconscious) with the focal target. The integration is tacit and as a consequence it cannot be spoken nor captured in verbalisation"*.
(Nielsen et al p. 10, 2002)

I do not disagree in this criticism of the "thinking aloud", but on the other hand the method remains a practical approach to HCI user testing. Therefore I have still chosen to use it, although with modifications in order to attempt overcoming the problem of verbalising thought. By accepting that this is exactly not possible, I have taken inspiration from a HCI workshop I attended in 2003 at the MIL-education. The workshop was given by two of the authors for the paper; Jannie Nielsen and Carsten Yssing (both from Copenhagen Business School). During the workshop Nielsen & Yssing presented an alternative method for HCI-testing, which consists of:

1. The users performs a task on the computer. While the user concentrates on his/her task an application[6] records simultaneously what is performed.
2. Afterwards the recorded sequence is played in its total length with the user as spectator.
3. Then the sequence is replayed, but this time as a part of a semi-structured interview. Each question marks an interruption of the sequence.

This way of proceeding leaves out the "thinking aloud" as a verbalisation of the process. Instead, it forces the user to reflect on the process at a moment where the action is still fresh in mind and thus, hopefully, reveal pieces of the process of cognition.

I have further modified this method by – as described in the second paragraph to this subchapter – turning the focus from the screen to the guides in printed form.

In practice it proved to be rather difficult to strictly follow this sequencing in the test, because one of the three respondents insisted on commenting on the task and the guide during part 1. As a consequence replaying the recorded task would have taken all too much time and have "killed" the momentum of the test. I still, however, followed up the task performance with an interview, and since the respondent had just been commenting on the task and the guide while doing the "work", it is my impression that this change in the planned sequence did not have a negative influence on the validity of the interviews for analysis.

The reason why the respondent wanted to comment already during part 1, was because the task was known to her, so she was eager to express her point of view - whereas the two other respondents had less or no experience to draw on.

[6] In this case "Camtasia- see http://www.techsmith.com/camtasia.asp

3 Empirical Research Method

3.1 Description of the legislative workflow

One does not need to have an in-depth understanding to ITER's role in the legislative workflow in the European Parliament in order to comprehend this project, so the following description is providing nothing but a brief overview of the process.

The first of the two slides[7] below illustrates the cycle of one Reading[8] in the European Parliament, which in a schematic form is as follows:

1. The European Commission (EEC) forwards as legislative proposal (typically a "COM"-document) with a procedure reference to the European Parliament (EP).

2. The proposal is registered in the EP together with the procedure by the Greffe/Referral Service (officially named "Reception and Referral of Official Documents") and in ITER via the application "EP-Greffe (or manually, if the system fails).

3. Greffe/Referral links the procedure and the proposal to a "referral" for that (or those) parliamentary committee(s), whose responsibility domain(s) covers the subject of the proposal. A referral assigns one parliamentary committee with the task to draw up a report on a legislative proposal. In the same referral other parliamentary committees can be asked for an opinion.
   The referral triggers the creation of a "dossier" in ITER for each of the referred committees. A dossier is a container of those documents related to the proposal as well as a database of the related "events" (= decisions and actions taken in the committee on the subject).

4. When the committee has got its referral it starts working on the legislative proposal. It nominates a rapporteur for the report (or the opinion), and the committee's secretariat appoints a responsible administrator as adviser for the rapporteur. Other members of the committee are likely to propose amendments to the proposal, so the report's

[7] taken from the course presentation for ITER Module 1 - see Chapter 9, Annexes

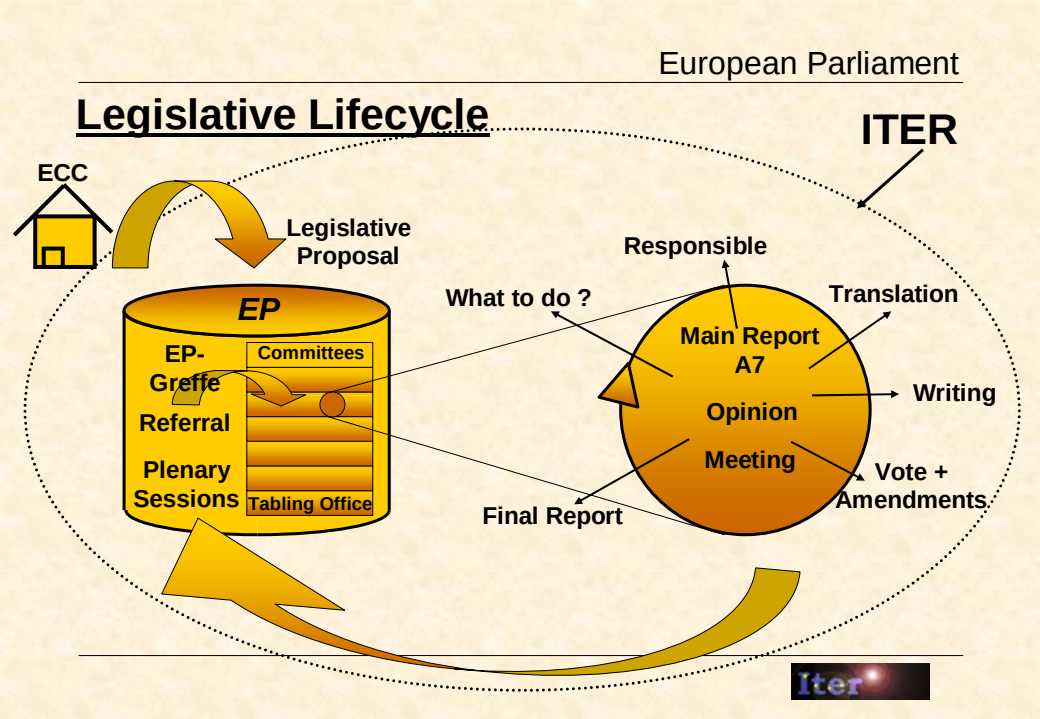
[8] depending on the type of legislative procedure there can be several readings

content is subject to political negotiations within the committee until the final adoption.

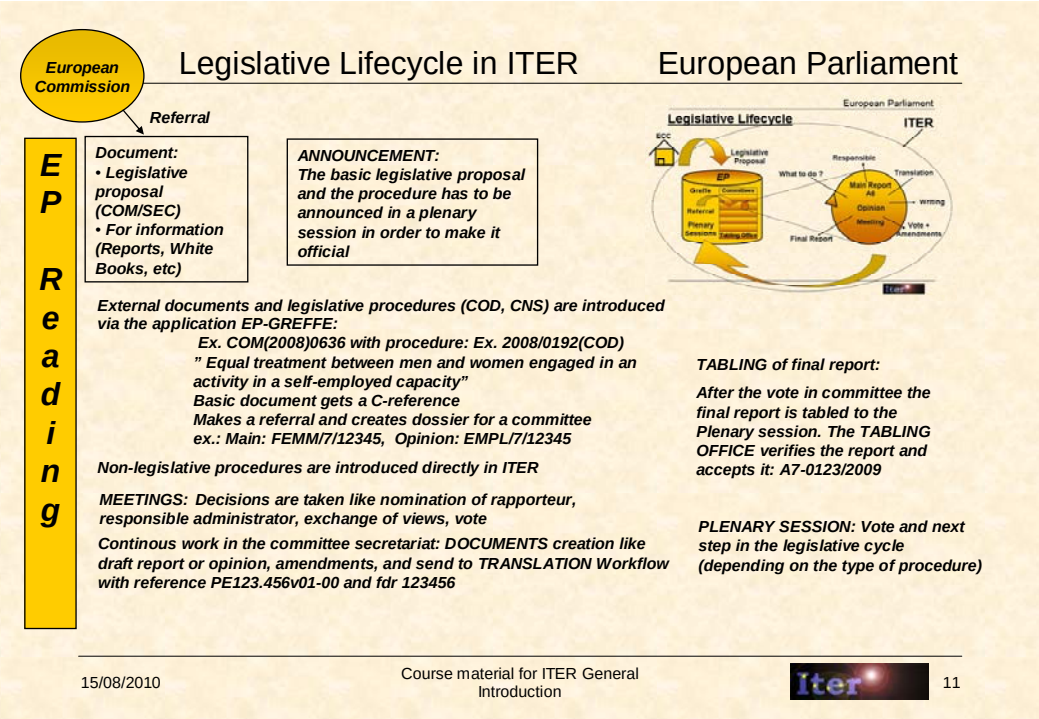
During this process several versions of the draft report, the amendments and related documents will be sent to translation from ITER by the secretariat. Sending to translation normally also includes an automatic publishing of the document on the EP's website, unless the document is send as "blocked". In the EP-terminology this whole process is called the "document workflow".

5. After the final adoption in committee the secretariat “tables” the report in ITER, so it can be published as a report for a plenary session in the EP. A “tabling” implies a thorough linguistic and legal check of the report's wording by the Legislative Acts' Service (former “Tabling Office”) before the final accept of the report by the Parliament's plenary services.

6. After the debate and vote of the report in the EP's plenary session the Reading cycle is ended. The result of the vote and the status of the Reading is also registered in ITER.



The second slide[9] provides a few more details in relation the above description:



3.2 The ITER user community

For historical reasons only the work in the parliamentary committees has until recently been the subject for guides. However, as ITER covers the legislative cycle from the reception of legislative proposals from the Commission/Council (Greffe/Referral) over the whole part of committee work to sending document to translation and back again; even with some user input on the translation side, the non-personal support could also in the principle cover all these areas. If this would be the case, the different nature of the job tasks in the different DG's and services should be taken into consideration. In my project I have, however, chosen to focus on the use of guides related to the working practice in the committees. Nevertheless I do not find it possible to exclude the other user groups completely from the description of the characteristics of the ITER user community. This is important background information as well.

[9] taken from the course presentation for ITER Module 1 - see Chapter 9, Annexes

3.2.1 Committee work (DG IPOL/EXPO)

The ITER-related work in the parliamentary committees can be divided in two fields:

a. **Document handling**, which basically concerns creation of document references in ITER and later sending to translation, also from ITER. These are usually tasks performed by the secretaries in the committees and are particular in the sense that they also require the handling of DocEP; the document content creation tool.

One specific and important task is the "tabling" of final reports on a legislative procedure to the plenary session.

b. **Dossier handling**, which is also linked to committee meeting management. This is usually the committee assistant's field of work and implies creation of dossiers as containers of non-legislative documents and most important: Creation of events in referred dossiers for legislative procedures as a part of the planning of the committees work via the meeting management features in ITER.

Hence, the supporting guides for the work in DG IPOL/EXPO are aimed at:

a. Secretarial tasks related to the document workflow, including references to related DocEP-tasks (and support guides).

b. The overall tasks related to the technical management of the legislative work in the committees.

This also implies that where explanations related to point a) have to be quite punctual; then explanations for the point b) have to provide a wider, EP-business-related view. Guides for both fields have in common, that they should address themselves to a quite large public in the committee secretariats.

3.2.2 Greffe/Referral, Programmation, TMS (DG PRES)

The ITER-related work in DG-PRES can be defined by, that

- the user group is much smaller than in the committee secretariats
- the staff turnover rate is lower than in DG IPOL/EXPO
- the work is highly specialised and each case has to be treated as unique

3.2.3 TMS (DG TRAD)

Translators use the TMS-wizard (a specific feature for title translation, TMS = "Title Management System"). TMS is used by approximately 60 users in DG TRAD.

3.3 Prestudy: User survey of on-line help and step-by-step guides

As mentioned in the introduction chapter I began working on this project on an assumption that an interactive design of the user guides and an improvement of the built-in on-line help function in the ITER application would provide a lift in the user's learning. Within this view a survey was carried out in which the ITER users in DG PRES, IPOL and EXPO were asked to fill a out a multiple choice form and to give their opinion to a guide to view in printed format, at the screen and with our without screenshots.

See the user survey form on next page and the analysis of the results as I presented them in January 2007:

Questionnaire about the ITER On-Line Help

Dear ITER Users, in order to improve the on-line help application in ITER and the guides on the ITER-pages, we would like to ask for your feedback by answering this questionnaire. Your answers will get a direct influence on the content and layout of the future on-line help.
We would ask you kindly to fill in the form and send it to us before **December 8, 2006.**

1) In which DG are you working?

○ PRES ○ IPOL ○ EXPO ○ TRED ○ Other DG:

2) Do you use the on-line help inside ITER  (not the step-by-step guides)?

○ Yes ○ No ○ Not Anymore

Could you explain us in short why you are using (or why you are not using (anymore)) the on-line help?

If you are not using the on-line help function (anymore), would you consider (re-)using it when improvements are made?

○ Yes ○ No

3) What could be improved for the ITER on-line help? *(answer is in free text)*

4) How often do you use the ITER on-line help?

○ More than once a week ○ Once a week ○ Once a month ○ Seldom ○ Never

5) Do you use the step-by-step guides for ITER (click here to go the recent list)?

○ Yes ○ No ○ Not anymore

Could you explain us in short why you are using (or why you are not using (anymore)) the step-by-step guides?

If you are not using the step-by-step guides (anymore), would you consider (re-)using them when improvements are made?

○ Yes ○ No

6) What could be improved for the ITER step-by-step guides?
(answer is in free text)

7) If you use a step-by-step guide, do you then:

○ Print it out ○ Follow it at the screen ○ Print it out and have it open at the screen at the same time

8) Would you consider a step-by-step guide with links for screenshots useful (take a look at this example - open folder in the File Download window appearing in front of you or in the task bar for Internet Explorer in the bottom of the screen;
links in document are in blue)

○ Yes ○ No

(#) Please describe briefly why (yes or no):

Analysis of answers to ITER User Survey on the On-line help, November - December 2006

Wednesday, 07 March 2007

3.4 Users who answered

Mail 28/11/2006 sent to active users	170
Actual answers	13
Answers/Active users	**8%**
Keyusers IPOL/EXPO[10]	38
Keyusers PRES[11]	7
Keyusers in total	**45**
Actual answers	13
of which are keyusers	8
Keyusers/answers	**62%**
Number of keyusers who answered/all keyusers	**18%**

As you can see from the figure above the actual reply percentage related to all active users was not very high (8%). If you, however, apply a "keyuser's" approach you will see that out of 13 answers, 8 came from keyusers (62%). This gives a reply degree of 18% of all keyusers(8 out of 45 keyusers in total), which is not so bad after all. With this figure you should be able to deduce some general tendencies among the user population.
Conclusion: The survey result is valid not only as what regards the qualitative answers (which have always subjective value) but also as what regards the quantitative part, if you pay attention to avoid drawing too firm conclusions.

3.5 Questions and Answers

3.5.1 1) In which DG are you working?

PRES	IPOL	EXPO	OTHER
4	7	2	0

3.5.2 Comments

The two PRES-users gave similar answers in the whole survey, which is why some duplicate answers occur in the following points.

[10] Only IPOL/EXPO has an established "Keyuser"-system; for PRES (Tabling Office, GREFFE/SAISINES) the term has been attributed on the basis of a subjective judgement)
[11] Only IPOL/EXPO has an established "Keyuser"-system; for PRES (Tabling Office, GREFFE/SAISINES) the term has been attributed on the basis of a subjective judgement)

3.5.3 2) Do you use the on-line help inside ITER (not the step-by-step guides)?

Yes	No	Not anymore
3	8	2

3.5.4 Comment:

One of the affirmative answers might be due to a misunderstanding of the term "Online-help" as meaning the ITER Helpdesk and not the application within ITER. See further down in 2a and in 3) *"?? They are competent, nice, sympathetic, efficient, quick, and polite… well, what could be improved ??? I would give them more holidays to keep them cool and fit !"* Although we are blushing because of these fine credits , the question has clearly been misunderstood!

3.5.5 2a) Could you explain us in short why you are using (or why you are not using (anymore)) the on-line help? (answer in free text)

I don't need it, and whenever I contact the Iter helpdesk, it is for more technical actions to be done.

I use it when I get some unusual bug mainly during the process of creating a draft agenda for my committee meeting. Mostly, I get quickly reply

ITS NOT SO HELPFUL

I don't use it because I'm used to follow the instructions in the step-by-step guide

Sometimes

I have not even tried yet.

I am using them to see if there are some updates

I never used it. I get used to work on ITER without this help.

Sometimes I use the on-line help, but there is NOT a bullet-reply in this questionnaire. Could you add it for the future enquiries?

en fait, j'ai plutôt le réflexe de "jouer" dans le système jusqu'à ce que je trouvze,,,:-)

je l'ai utilisé au début mais maintenant je n'en ai plus besoin, l'utilisation de base n'est pas très difficile !

probably because we know that if problems occur at our level they cannot be solved with the on-line help but have to be dealt with by the ITER Helpdesk Next question : depends on the improvements

probably because we know that if problems occur at our level they cannot be solved with the on-line help but have to be dealt with by the ITER Helpdesk Next question : depends on the improvements

3.5.6 Comment:

" I use it when I get some unusual bug mainly during the process of creating a draft agenda for my committee meeting. Mostly, I get quickly reply!" is a misunderstanding of the question. *" Sometimes I use the on-line help, but there is NOT a bullet-reply in this questionnaire. Could you add it for the future enquiries?"* might also be one.
The general tendency of all the answers is, however, negative. Only one respondent seems to have been really using the on-line help and only when being new to ITER.

3.5.7 2b) If you are not using the on-line help function (anymore), would you consider (re-)using it when improvements are made?

Yes	No
1	4

3.5.8 Comment

In line with 2a)

3.5.9 **3) What could be improved for the ITER on-line help?** (answer in free text)

Do short memos instead of so long descriptions ,,,

?? They are competent, nice, sympathetic, efficient, quick, and polite… well, what could be improved ??? I would give them more holidays to keep them cool and fit !

ITS COMPLICATED BETTER IS THE STEP BY STEP

I don't know, I don't use it

The on-line help is perfect, but we are missing some search options p.e. How many COD/CNS in 2005 are regulations/directives/decissions? A search on legislative procedures are often asked for statistics.

I have not tried using the on-line help yet.

I think ITER on-line help is clear enough

It seems that I'm obliged to give an answer here, but I can't because I don't know this on-line help. I'm sorry, I never used it. In any case, I suppose that everything can be improved. In my view the best on-line help is the one that gives clear and brief answers.

see last reply below

**

idem ci-dessus

Not using it for our purposes, we cannot make any comments or proposals

Not using it for our purposes, we cannot make any comments or proposals

3.5.10 Comment

The general picture is still negative, and the only detailed suggestion seems to refer to improvements for search options in the procedure module and not in the on-line help: *"The on-line help is perfect, but we are missing some search options p.e. How many COD/CNS in 2005 are regulations/directives/decissions? A search on legislative procedures are often asked for statistics."*

3.5.11 4) How often do you use the ITER on-line help?

More than once a week	Once a week	Once a month	Seldom	Never
0	1	1	4	7

3.5.12 Comment

See comment 2).

3.5.13 5) Do you use the step-by-step guides for ITER (click here to go the recent list)?

Yes	No	Not anymore
6	5	2

3.5.14 Comment

It is striking that more than half of the respondents (7 out of 13) do not use the guides.

3.5.15 5a) Could you explain us in short why you are using (or why you are not using (anymore)) the step-by-step guides? (answer in free text)

yes at the beginning for the depot, but it is so long and complex (done for beginners maybe but not for normal users), that I have prepare for me a "home-made guide" for the depot …

I did the course and found it very logical. I prefer to think about how to proceed rather than follow a step-by-step. My way to do allows me also to be a bit creative and change the order of filling in some stuff..

ITS EASY AND VERY HELPFUL YOU KNOW WHAT YOU MUST DO ANY TIME

I use it because it's very clear and very well done. I find it really useful. I have printed what I usually need for my job, not all the guide and when necessary I consult it.

everything seems logic after a few months

I find it handy having the guide next to me when using ITER.

I use the step-by-step when I am not sure of one specific step, especially regarding doing depot

I use it seldom now. I use it when I feel that I need some help or information on something I'm not very used to do.

I use them as a way to remember/check the right procedure

voir réponse 2

Je l'utilise toujours pour faire le dépôt d'un rapport, ça évite d'oublier une étape. Le step by step est très clair et vraiment utile dans ce cas.

this guide is especially for DG2+3 users - we only forward it to secretaries of these two DG's who do not know how to retable a report

this guide is especially for DG2+3 users - we only forward it to secretaries of these two DG's who do not know how to retable a report

3.5.16 Comment

It is clear that for PRES-users the existing guides are not relevant. For the IPOL/EXPO users the general tendency seems to be that when the user reaches a certain level of expertise using a detailed guide stops being relevant. Some do, however, continue to use them as a memory refresher, but not as a thoroughly followed check list.

3.5.17 5b) If you are not using the step-by-step guides (anymore), would you consider (re-)using them when improvements are made?

Yes	No
1	4

3.5.18 Comments

Advanced users do apparently not need these guides.

3.5.19 6) What could be improved for the ITER step-by-step guides? (answer in free text)

Do just a memo with some bullets on one page per action, and not so many pages that you don't understand anymore what has already be done or not ….

I think it is not bad because the secretaries of our committee follow it and apparently with success…

MAYBE TO BLOCK THE UNITS THAT MUST BE DONE TOGETHER EX. PRE DEPOT AND DEPOT

Nothing concerning the part of text that I usually use (to have a PE and FdR number, to send documents to translation, to do a pré-dépôt and a final dépôt)

Perhaps the search functions

Hand to say. Been pleased with them.

Add some links for screenshots

I'm sorry but I have no opinion on this now.

see reply 9 below

**

ça me convient tel quel !

Not using it, we cannot give any comments or make proposals

Not using it, we cannot give any comments or make proposals

3.5.20 Comments

These answers go in many directions, but if you combine with the answers from 5) one conclusion could be that the formats should be differentiated into:

1. Keeping the existing in order to support new users
2. A short summary for the advanced users

3.5.21 7) If you use a step-by-step guide, do you then:

Print it out	Follow it at the screen	Print it out and have it open at the screen at the same time
9	4	0

3.5.22 Comment

Although the majority prints out the guide, a significant minority can apparently do with the screen. This gives us a hint about that the graphical layout fulfils its purpose, so the user can navigate directly into an on-screen version.

3.5.23 8) Would you consider a step-by-step guide with links for screenshots useful (take a look at this example…..)

Yes	No
8	5

3.5.24 Comment

At this stage the respondents have tried out the example with hyperlinks. The answers are positive, although not overwhelmingly.

3.5.25 8a) Please describe briefly why (yes or no): (answer in free text)

or example: screen IT ,,, / field ,,,,, put X / field ,,,, put W ,,,, submitt (or save or confirm) now on screen IT ,,,, and so on !

Just don't forget that a training course at the beginning (for a new user) could never be replaced by an online help or some guides ,,, Those instruments are useful for the beginners with already some experience.

for some new procedure, why not, mainly for a check-up

IT IS MORE EASY TO USE ITS MORE FRIENDLY THAN THE OTHER LIST

I prefere to consult a paper text while I'm working in ITER, so I can follow what I'm doing on the screen

it looks good

Things are more visual and we have fewer chances to do mistakes

I feel more selfconfident when I can see pictures reproducing the buttons or icons I have to use. It's more easy to follow, more friendly user

Definitely yes, contextual aid is always a major improvement

je suis allée voir, c'est très bien fait, en fait ça me donne envie d'y aller un jour.

C'est utile pour un débutant mais ensuite c'est trop long. Un petit "aide-mémoire" bref suffit.

3.5.26 Comment

These answers go in different directions. Once again one seemingly would have to distinguish between:
1. Advanced users, who simply *know* and therefore do not need any - or only a very brief written support.
2. Users (for whom expertise level does not matter) who have a strong visual perception and for whom graphics in any form eg. (screenshots) is a help.
3. Users (for whom expertise level does not matter) who have a strong textual perception and consequently needs a check-list in words.

3.5.27 9) Do you need a step-by-step guide for a task which is not in the list (click here)?

Yes	No
2	11

3.5.28 Comments

See answers below.

3.5.29 **9a) Please describe briefly:** (answer in free text)

RE-DEPOT

It is mainly for : a) compromise amendments in committees which are not always already deriving from existing translations and for which internal instructions foresee to give a PE/fdr nos; b) simplified procedures (rule 43) where a draft report does not exist (some times we create a PR then transform into RR, then having version 01-00 and 02-00); c) other documents like questions (oral and written), motions for resolution, etc.. Especially for newcomers (but I am not one), I guess it is difficult to understand these specific documents, when everything seems only focused on report (mainly legislative) and opinion, PVs, agendas. Many thanks!

3.6 General conclusion:

As what regards the *on-line help* in ITER the general picture is that it is not used and that there is not much need for such a function either. It should therefore be discussed if an up-date is worth the effort,

As what regards the *step-by-step guides* there is clearly a need, but it is related to the level of the user's expertise and to the way the user perceives visually and textually. One way of responding better to these differences could be done by differentiating the guides into:

1. A text-based summary for advanced users
2. A complete guide with screenshots as links, but in a setup so that you can print out the text part without printing out the images as well (as in the example in the survey)

3.6.1 Change of focus following the pre-study

On the basis of the results from this pre-study it became clear to me that focus had to be turned toward away from a pure design aspect and into an aspect which draws on those elements of learning theory seeking to provide an understanding of how the learner builds up a practice within a given field.

3.6.2 Concrete empirical approach

With the conclusions from the pre-study in mind I decided to carry out the second phase of my empirical study as a simulation of a work situation where an individual user is asked to perform a task in ITER. Users were selected on the basis of experience (in my judgement) according to Dreyfus & Dreyfus ” categories (see chapter 4. “Learning Theory”).
As test cases to perform I chose one, which should be considered as a routine task:

- Sending documents to translation

This test was followed up with an interview.
As a follow-up to the interview I also interviewed the respondent about another much more complicated task, which is because of its complexity very difficult to test:

- namely the Rédépôt (or “retabling” in English terminology)

This is the case where an already *tabled* report has to be *retabled* because of eg. a linguistic error in the document. This happens quite often, although it cannot be considered as a routine task (see also chapter 6.1.2):

4 Learning theory

In order to learn more about the ITER user's support needs one will definitely have to draw at the kind of learning theory, which focuses at how the human mind learns in the concrete context of practice. I have thus chosen to refer to the works of Jean Lave & Etienne Wenger (1991), Donald A. Schön (1983) and Dreyfus & Dreyfus (1986), as they might in many ways be seen as complementary. Where Lave & Wenger's main contribution to the research field of learning – at least as what regards this project – may be pointing out the importance of learning as a social concept, Schön and the brothers Dreyfus both develop proper typologies based on the acquisition of "tacit knowledge" (Polanyi, 1966). Lave & Wenger's approach to learning theory is, nevertheless, inevitable for setting up the theoretical framework before operationalising terms for my empirical research.

4.1.1.1 Legitimate Peripheral Participation

As mentioned before, Lave & Wenger's work should in the context of this project primarily be seen as a perspective to be used at meta level. Briefly, they develop their notion *"legitimate peripheral participation"* on the basis of the assumption that a person in the middle of a learning process should be seen as an apprentice; that apprenticeship is a key term for understanding learning as a social process in a *"community of practice"* (here from Lave & Wenger, 1991, p 30, p 42). "*Legitimate"* implies that the learner's participation in the community is accepted by this community; *"peripheral"* implies that the learner is not yet fully integrated in the practice (when that happens, he/she has been led to *"full participation"*:

"Peripherality suggests that there are multiple, varied, more- or less-engaged and –inclusive ways of being located in the fields of participation defined by a community. Peripheral participation is about being located in the social world." (Lave & Wenger, 1991, p 36)

Lave & Wenger states that this concept – ambiguous as it may seem – should be seen as dynamic. How it is shaped concretely depends on the given context; that is the social organisation of the community, its resources and how it deals with legitimacy in relation to its participants.

A crucial part of dynamism is also related to the changing over time:

"Thus we have begun to analyze the changing forms of participation and identity of persons who engage in sustained participation in a community of practice: from entrance as a newcomer, through becoming an old-timer with respect to new newcomers, to a point when those newcomers themselves become old-timers." (Lave & Wenger, 1991, p 56)

In other words one will have to place learners on a time-line related to the learning process, as it takes place in the given community.
Another aspect is what has to be learned and how it is defined. Lave & Wenger quote Bourdieu (1977) for his pointing out that teaching (e.g. in school) by giving prescriptions with the intention of creating a specific practice, will not give the intended result. Instead the resulting practice will be different from what was the intended goal with the teaching; just as the nature of the participation which is generated in school will be different from the nature of the participation which is needed in the target practice:

"Legitimate peripheral participation is still the core of the learning that takes place. This leads us to distinguish between a learning curriculum and a teaching curriculum."
(Lave & Wenger, 1991, p 97)

The teaching curriculum is a construction with a conscious pedagogical purpose, mediated by an instructor - in other words, what is thought and wanted to be the right practice. The learning curriculum is by contrast

"a field of learning resources in everyday practice viewed from the perspective of learners"
(Lave & Wenger, 1991, p 97)

and thus characterised by that it is situated, as it is created in and by the participation by the learners in their community, for which the teaching curriculum evidently also has an impact. In an analytical perspective, it is the interaction between these elements that should be investigated and deconstructed.

4.1.1.2 Knowing in action – Reflecting in action – Reflecting in practice

Donald Schön develops in the second and core chapter in his book from 1986 "The Reflective Practitioner, How Professionals think in action" a typology of three terms "knowing-in-action", "reflecting-in-action" and "reflecting-in-practice". He begins with stating that

> *"Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing. It seems right to say that our knowing is in our action." (Schön, 1983, p 49)*

Whereas "knowing-*in*-action" describes how we act and perform on an everyday basis without reflecting consciously (eg. throwing a ball), and how we will find it impossible to describe how we have learned a certain skill or how we actually perform it, "reflecting-*in*-action" is linked to

> *"that we can think about doing something while doing it" ." (Schön, 1983, p 54)*

Thinking about doing is, however, still difficult to define. While an element of surprise often triggers this reflection *on* what we do while being *in* (Schön, 1983 p 55-56) the action,

> *"one must use words to describe a kind of knowing, and a change of knowing, which are probably not originally represented in words at all" (Schön, 1983, p 59)*

Schön develops this idea further into the term "Reflecting-in-practice", where "practice" differs from "action" in the sense that the former comprises the latter plus elements of repetition within a professional situation (Schön 1983, p 60-61). The practitioner "practices" his practice when

"he develops a repertoire of expectations, images and techniques" (Schön, 1983, p 60)

It is when this practice is challenged in the middle of the performance that the practitioner begins reflecting *in* action. This kind of reflection is thus bound to the context, whereas reflection *on* the action may happen in time and places separately from the practice itself (i.e. while reflecting on what went well and what went wrong in a finished project). Reflecting-in-practice means adjusting the action at a conscious as well as tacit level while performing; a

part of it is in other words experimenting in order to correct a perceived problem of the well-known practice.

When someone reflects-in-action, he becomes a researcher in the practice context.
(Schön, 1983, p 68)

What distinguishes this way of experimenting from planned (e.g. scientific) experiments is that – although going on at least partly at a conscious level – it goes on independently of established rules. The practitioner is while reflecting on his practice also experimenting within the direct context of his practice, which is unique. If or when the result of experimenting happens to be positive, the practitioner implements the new way of doing right away.

As what concerns Schön's approach the analytical perspective should focus on the individual practitioner's learning without so much regard to the community of practice.

4.1.1.3 Five steps from novice to expert

Among the three approaches I have chosen for drawing up my theoretical framework, the brothers Dreyfus' is the most simple and easy to comprehend. It cannot, however, stand alone, as it exactly lacks taking into account the social dimension of learning (or at least only touches it briefly).

Also Dreyfus & Dreyfus take their starting point in discussing the difference between problem solving at a conscious level by applying logical rules (*"knowing that"*) and problem solving (with a positive result) at an intuitive level (*"knowing how"*). Then they develop their *"Five stages of Skill Acquisition"* on the basis of a series of examples from problem areas, which have all in common that they are *"unstructured"*

"Such areas contain a potentially unlimited number of possibly relevant facts and features, and the ways those elements interrelate and determine other events is unclear"
(Dreyfus & Dreyfus, 1986, p 20)

This feature of lack of structure is according to Dreyfus & Dreyfus representative for the most common kind of problem area, which contains types of problems for which their solution cannot be easily verbalised. Examples are many; e.g. everything implying a social interaction such as management, teaching, playing etc. (Dreyfus & Dreyfus mention as empirical

examples pilots, chess players, car drivers and adult learners of a foreign language) . Practice in a concrete context plays evidently an important role:

"A high level of skill in any unstructured problem area seems to require considerable concrete experience with real situations, and any individual will have had more experience with some types of situations than with others." (Dreyfus & Dreyfus, 1986, p 20)

The five stages (see also fig. 1 next page) define how a learner runs through a process from the level of a debutant *("novice")* over gaining some experience *("Advanced beginner")* over mastering the skill at a conscious level *("competence")* to normally mastering the skill at an intuitive level although by applying problem-solving analytically *("profiency")* to mastering the skill at all levels by applying intuition *("expert").*

The model of five stages drawn up so distinctively can be subject to criticism for being too rigid, but I think that Dreyfus & Dreyfus point out important issues in their discussion of how cognitive terms like consciousness and intuition interact in building up levels of expertise:
"When we speak of intuition or know-how, we are referring to the understanding that effortlessly occurs upon seeing similarities with previous experiences" (Dreyfus & Dreyfus, 1986, p 28)

To note, by the way, that the notions of *intuition* and *know-how* here merge, as Dreyfus & Dreyfus choose to integrate cognitive *(intuition)* as well as bodily *(know-how)* aspects into one: *Intuition.*

TABLE 1–1. Five Stages of Skill Acquisition

Skill Level	*Components*	*Perspective*	*Decision*	*Commitment*
1. Novice	Context-free	None	Analytical	Detached
2. Advanced beginner	Context-free and situational	None	Analytical	Detached
3. Competent	Context-free and situational	Chosen	Analytical	Detached understanding and deciding. Involved in outcome
4. Proficient	Context-free and situational	Experienced	Analytical	Involved understanding. Detached deciding
5. Expert	Context-free and situational	Experienced	Intuitive	Involved

Fig. 1 (Dreyfus & Dreyfus, 1986, p 50)

4.1.2 Operationalisation of terms for the analysis.

In the introduction to chapter 6 "Analysis" I present a table with those terms from the above presentation of learning theory that I will use concretely in analysing the results of my tests.

5 Design

5.1 Theory and analysis

5.1.1 Lisbet Thorlacius' model for visual communication on web sites

In order to complement my exploration of how an ITER user uses the written support, I have chosen to draw on theory, which can be used to describe and analyse how a user would perceive the ITER guides. This is in itself a vast field, and as this approach is after all secondary to the one of learning processes (in this project) it has been quite a challenge not to spend more time on theory research than necessary. On the other hand there is no easy solution; you cannot apply design- and communication theory in any amputated way, which is why my choice in the end fell on the analyse model for visual communication developed by Lisbeth Thorlacius (2002[12]). This model is very comprehensive and although Thorlacius has developed her model for analysing web sites, she states herself that it is a general model to be used for all kinds of media products (Thorlacius, 2002, p 23). One of its advantages is also that depending on the object for analysis the different elements in the model will have more or less weight, thus the model will be applicable for analysing the layout of the ITER-step by step guides, even though they have no interactive elements. Hence I will in the following concentrate on introducing those elements of the model which are not directly related to interactivity; that is, however, also the main part of the model. Furthermore, I will only briefly mention those elements, which focus on emotional ("*emotive*") aspects of communication, as these aspects are intended for other types of communication than the ITER guides.

On next page you will find a schematic presentation of Thorlacius' model for visual communication:

[12] When nothing else is indicated I refer to the Danish version of Thorlacius' book " Visuel kommunikation på websites" from 2002, Roskilde Universitetsforlag. The terminology is, however, from Thorlacius . "A Model of Visual, Aesthetic Communication Focusing on Web Sites". I: Nielsen, Janni (red.) *Digital Creativity*. Vol. 13, No. 2. Maj 2002. Holland. Swets & Zeitlinger. 2002, side 85-98.

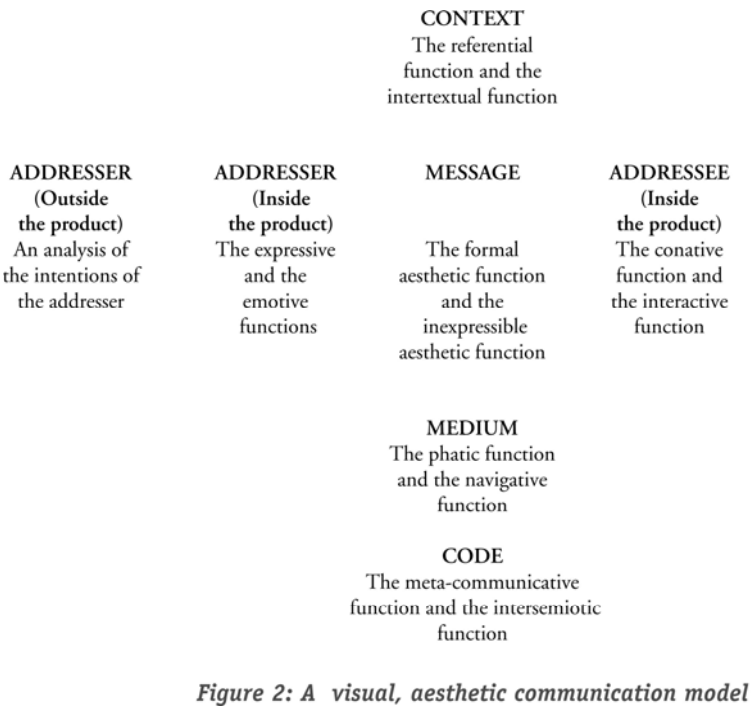


Figure 2: A visual, aesthetic communication model

Fig 2. "A Model of Visual, Aesthetic Communication Focusing on Web Sites". I: Nielsen, Janni (red.) *Digital Creativity*. Vol. 13, No. 2. Maj 2002. Holland. Swets & Zeitlinger. 2002, side 85-98.)

When applied to the guides, the relevance of the model's different elements would be as follows:

5.1.1.1 Addresser (Outside the product):

On the contrary to what Thorlacius does in her analysis of the Danish State Rails' website, I can analyse the *addresser's* (ie the ITER Helpdesk's) intended purpose of the media (the guides) and compare this analysis with the actual impact on the addressee, that is in this context the ITER user.

From the point of view of the ITER Helpdesk the idea behind a step-by-step guide is that by following the guide meticulously the user should be able to perform a certain task without having to ask for help from outside. The guide is aimed at any kind of ITER user regardless his or her level of experience. I discuss how this works in practice in the analysis of the user tests (Chapter 6.2.3).

5.1.1.2 Addresser (Inside the product):

Concerns the *expressive* and the *emotive* functions. The term *expressive* covers the addresser's visibility (consciously or unconsciously) in the text, whereas the *emotive* functions cover those emotions and attitudes, which an interpretation of the implicit sender's intention would uncover from the text and/or choice of colours.

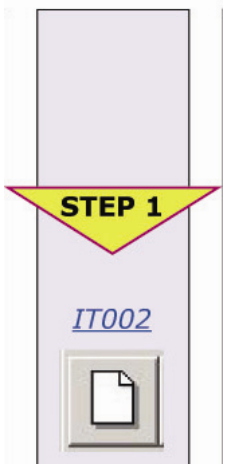
In order to operationalise these functions Thorlacius draws on Aristoteles' rethorical terms for persuasion: *Ethos* and *pathos* (Thorlacius 2002, p. 64). By applying ethos the addresser attempts to show reliability in order to gain confidence from the recipients. The addresser uses pathos by calling for the recipient's mood and feelings.

Although the ITER-guides are created with the aim of having a neutral emotional impact, analysing the expressive and emotive functions would still contribute to finding whether this is really the case as seen from the addresser's point of view.

5.1.1.3 The expressive and emotive functions in the ITER Step by step guide

The first thing you notice on the ITER guide is a top bar held in black and dark blue colours with yellow text and the ITER-logo to the left. The colours in the bar match with the 

ITER-logo, which shows the wording "Iter' with purple font and yellow stars - obviously an association to the EU-flag. Next to the text is a circular shape, white in the middle and with bordeaux circles becoming darker in hue. This gives a visual effect indicating movement and forms a contrast to the dark hue of the bar. Together with the guide number and title in yellow the top bar indicates seriousness, while the ITER logo stresses the link to the application. The light blue column in the middle of the page (separating English and French text) also links to the colour of the letters in ITER logo, whereas as the yellow in the triangle mirrors the top title text. This gives a double ethos effect, as it expresses contingency by linking elements on the page while using blue, which by convention refers to reliability (Thorlacius 2002, p 90 *Digital creativity*). In other words you could say that the addresser states to the addressee "feel safe, here we know what we talk about".



Iter 3.05 Sending document to translation

1/6

If a document has already been sent to translation/planning, always make a new version:

1) generate the published (draft agenda) again
2) you will get a version 2 of the document
3) send this document via the workflow to planning/translation with new FdR
4) Put in the Notes for Planning: this version replaces the first version of the document (FdR xxxxxx). This information is also important for Europarl

Si un document a été déjà envoyé à la traduction/au planning, faites toujours une nouvelle version :
1) régénérer l'ordre du jour publié
2) une nouvelle version 2 du document est créé
3) envoyez ce document par le workflow au planning/à la traduction avec la nouvelle FDR
4) Mette dans les notes au planning : Cette version remplace la première version du document (FDR xxxxxx). Cette information est aussi assez importante pour Europarl

Send a document to translation by using the PE-number

STEP 1

IT002
- click icon "document"

IT002

STEP 2

IT013
- click "search"

IT013

IT023
- type the PE-reference in the field "document reference like"
format : nnn.nnn (you don't have to type the letters PE in front)
- click "search"

IT023

STEP 3

IT107
- double click the document you want to send to translation
Pay attention to the version number

IT017

STEP 4

IT022
opens on tab "basic information"

IT022

Envoyer un document à la traduction en utilisant le n° de PE

IT002
- cliquer sur l'icône "document"

IT013
- cliquer sur "recherche"

IT023
- taper la référence PE dans le champ "Référence du document comme"
format : nnn.nnn (pas besoin de taper les lettres PE devant)
- cliquer sur "recherche"

IT107
- double clic sur le document que vous voulez envoyer à la traduction
Prênez attention au n° de la version

IT022
s'ouvre sur l'onglet "information de base"

5.1.1.4 Message:

The *formal* function covers the aesthetic and classifiable part (combining sensation and cognition) of a media product's visual expression. The *"inexpressible"* function describes how the aesthetic experience (primarily sensation and feelings, secondarily cognition) is mediated. The point is that the "inexpressible" function cannot be classified; it remains subjective in its essence (Thorlacius 2002, p. 115).

Thorlacius puts much weight on the latter as it has until recently exclusively been viewed upon as belonging to art theory, where her opinion is that the creative process related to commercial and public design should get a higher priority (Thorlacius 2002, p. 135).

I mention it here because it is a part of her model, and because I also believe that creativity is important even for design of manuals like the ITER guides.

5.1.1.5 The formal and the inexpressible function the ITER step-by-step guide

The page setup is stylistically simple, kept in two text columns with English respectively French text. On the first page the explanatory introduction text is clearly separated from the text box containing the actual steps. The top bar is a continuous element on all pages together with the blue column in the middle, and the yellow triangles contribute to a downward flow of the reading direction. Screenshots of ITER buttons are kept within the blue column and in general colours are used in a subdued manner. Together these aesthetic elements signify harmony and simplicity. They *"are formal functions because they can be described and classified"* (Thorlacious 2002, 94 *Digital creativity*).

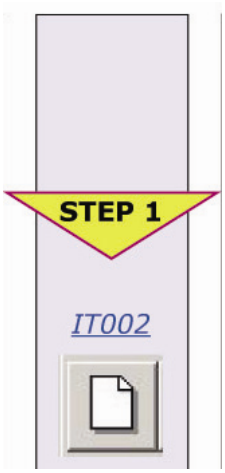
It is likely that the user experiences the inexpressible function in the same sense as the formal function, but we cannot be sure; and a further analysis would require a kind of cognitive study which falls outside the scope of this project.

5.1.1.6 Addressee (Inside the product):

It is implicit in the communication product to whom and how addressees are targeted (the addressee should be seen as an individual as well as a target group). The *conative* function describes the use of imperative and is most typical for instruction manuals (like the ITER

guides; (Thorlacius 2002, p. 75). The *interactive* functions are only relevant for hyper textual medias like web-sites, so I leave them out here.

5.1.1.7 The conative function in the ITER step-by-step guide



The yellow triangle with the text STEP pointing to the ITER-window reference, sometimes followed by the button covers the visual dimension of the conative function in the ITER guide, as it urges the user to continue to the next step in the task to perform. The linguistic dimension is expressed by the common use of imperative in the text; "click icon document", "click search" etc..

5.1.1.8 Addressee (Outside the product):

The *cognitive reception* is for analysing how the addressee understands and perceives the content of the media. The *conative reception* focuses on how in reality the implicit conative function has influenced the addressee's behaviour. The *emotional reception* (not to mix up with the emotive functions) focuses on which feelings and sensations the product arouses in the addressee, be it intended by the sender or not (Thorlacius 2002, p. 95).

This falls under the analysis of user tests, see chapter 6.2.3.

5.1.1.9 The context:

Refers to the situation in which the communication is taking place – in this case the working place. I will therefore refer to chapter 3.2 "Context and target group", and the analysis in chapter 6.2.3, while leaving out most of Thorlacius' terms related to the analysis context as they are less relevant for this project. I will however, mention the *referential function*, which describes how the product refers to the context by using text or graphics. The more referential the product, the less emotive or sensational content it will have – the best example is an instruction manual (Thorlacius 2002, p. 153)

5.1.1.10 The context in the ITER step-by-step guide

You find the referential function very clearly present in the guide: It is in the pictures of the buttons from the ITER interface and in the text, which is referring to actions to perform in the application.

5.1.1.11 The medium:

Is the communicative link between addresser and addressee. A part of this link is the *phatic function*, which covers how narrative aspects (text, graphics) glue the product together in order to create consistency (Thorlacius 2002, p. 166).
The *navigative functions* concern the structural build-up of websites and are not relevant here.

5.1.1.12 The phatic function in the ITER step-by-step guide

Every ITER-guide has the same layout: The title bar in the top with the ITER-icon, a short text introduction to the work task on the first page, and two columns in English respectively French describing the actions to perform; separated by a blue column with yellow triangles pointing downward as arrows. This is an example of a phatic function which is clearly consistent and easily recognisable: The user will even at a quick glance make an association to an ITER-guide.

5.1.1.13 The code:

The *metacommunicative function* is about how the media may draw on narratives from other medias. This function is widely used in e.g. publicity, but not relevant here.
The *intersemiotic function*, on the other hand, concerns how one kind of a textual presentation; e.g. a description can be translated and into another kind of presentation, e.g. an icon.; and thus *anchoring* the code from first presentation by the code from the second (Thorlacius 2002, p. 190). User manuals are good examples of this function.

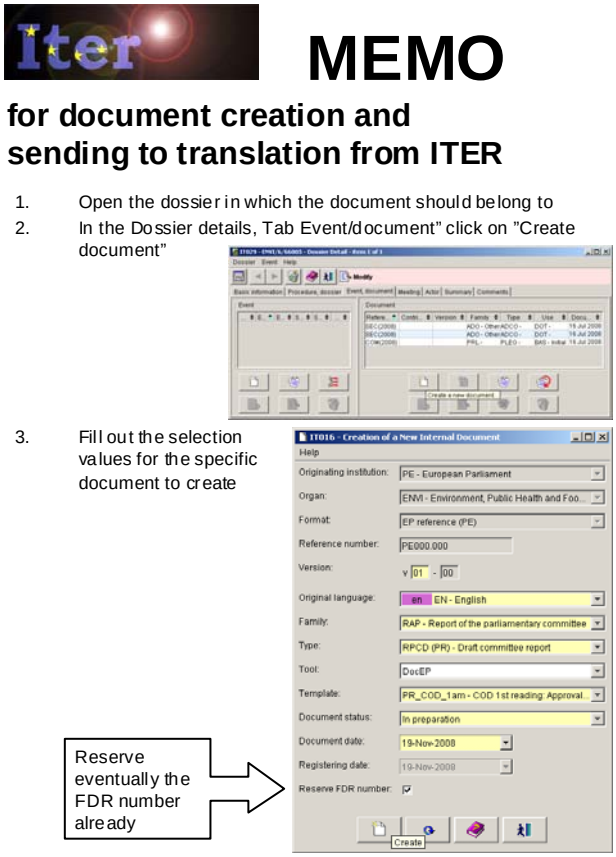
5.1.1.14 The intersemiotic function in the ITER step-by-step guide

Every icon pictured in the guide expresses the intersemiotic function; in the example to the left the text "click search" is translated with the picture of this button showing a magnifying glass in front of a dossier. Clicking on this button will activate the search function in ITER.

5.1.2 The ITER guide in the user test

In the above text I have written a subjective analysis of the design of the guides, which were used in the user tests. As what regards the guides the analysis of these tests focus on how the user perceives their usefulness in the practice situation. This is due to practical limitations in the design of the user tests, and as a consequence questions about design perception had to be asked explicitly.

In order to trigger a reflection about the layout the test respondent was shown an alternative layout with screenshots combined with a short summary of steps and fields to fill out. You can read the answers in chapter 7 “Analysis”.

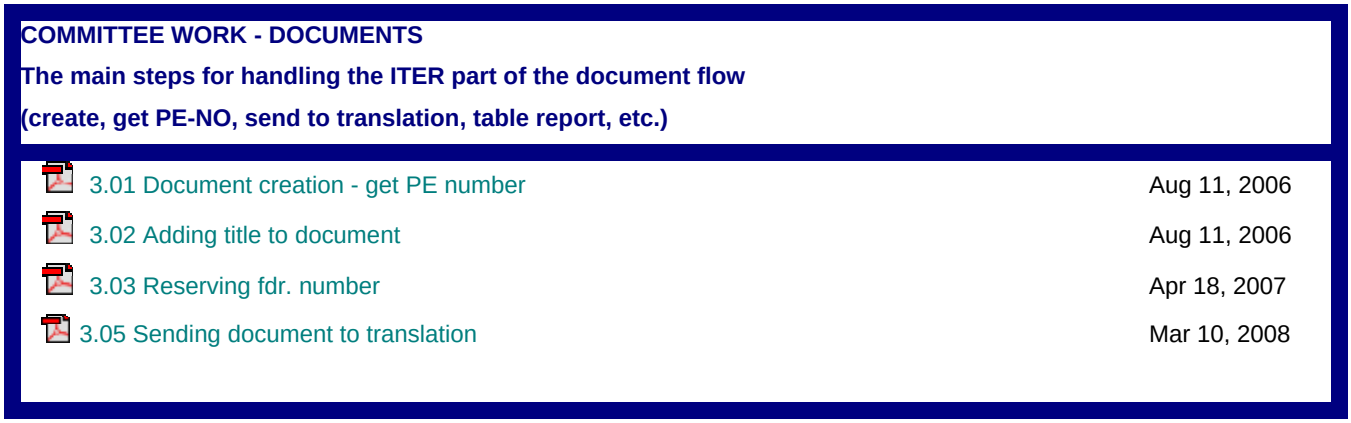


6 Test design

6.1.1 Test 1. Send document to translation

See also annex: Test Description and all transcriptions

Guides to test: Compilation printed out in colours (screenshot from the ITER-step-by-step web page, see Chapter 9, Annexes, for the guides):



(please observe that the "missing" guide 3.04 is due to an earlier renumbering of the series)

User role: Secretary

Task: In existing dossier create and send Draft report to translation, EN original, fill in missing information

6.1.2 Test 2 – The Redépôt guide

The redépôt is very complex to test in reality, so this part of the tests should take place as an interview; in case the user already had experience with doing a rédépôt. Before the interview the user was given a copy of the redépôt guide (see Chapter 9, Annexes).

6.2 Questions for semi-structured interview

6.2.1 To follow the test

6.2.1.1 Guide design

1. What was difficult/what went well (in the test)?

2. After the test the user is shown a guide in the form of a “short-list” but with with screenshots. The user is asked if this would be a better design – layout as well as context-wise

6.2.1.2 Learning/teaching curriculum/ Learning in practice

2. How often do you perform this task?
3. How often do you ask for help from colleagues with this task?
4. Have you asked more or less for help in the past?
5. How long did it take you before you felt you could manage this?
6. Do you remember when you learned this task in a course?
7. Are there things you have learnt while working which is missing in the course?
8. Are there things you have learnt while working which is missing in the guide?

6.2.2 Information related to the user:

9. How long have you been here in EP?
10. What is your educational background?

7 Analysis of user tests

I will now in this chapter analyse the results of my user tests with a view to investigate the hypotheses I have set up as a further elaboration of my research question. I repeat them here in a summarised form:

- My main hypothesis is that the concrete practice situation determines whether the user will use available support products or personal and attentive help. Concerning the user's approach I assume that he or she in general prefers to seek personal help, because using a support product might be seen as time consuming and too complex. As what regards the design of the support tool itself I assume that an adaptation to the user's expertise level of the product and the use of visual examples promotes the learning process.

Since the project has two strings: a) The user's learning behaviour and b) how to differentiate support products related to the users level of expertise; I will combine these two strings in the analysis while relating my findings from the tests to the project's two theoretical dimensions of learning theory and design theory, respectively.

7.1.1 Theoretical framework for analysis

In chapter 5 “Design” I wrote that due to the nature of visual perception my subjective analysis of the layout of the ITER step-by-step guides had to be combined with asking explicit questions to the test respondents during the follow-up interview after the test of the guides used for sending a document to translation. Hence I base the analysis of the tests on the transcriptions of the interviews, to which I apply the theoretical framework from learning theory.

The table below shows the use of the theoretical terms I apply for the analysis

Term	Author	Use
Legitimate peripheral participation	Lave & Wenger	Meta level
Newcomer	Lave & Wenger	to be coupled with Dreyfus & Dreyfus
Oldtimer	Lave & Wenger	to be coupled with Dreyfus & Dreyfus
		Linked to curriculae In the context of using ITER I will define learning resources as elements of information related to ITER tasks and coming from anything a user could base learning on: Colleagues, manuals, training courses.
Learning resources	Lave & Wenger	
Learning curriculum	Lave & Wenger	What is learnt (to draw out from analysis)
Teaching curriculum	Lave & Wenger	What is (explicitly) supposed to be learnt
Knowing-in-action	Schön	For categorization of users and for exemplification of theory
Reflecting-in-action	Schön	For categorization of users and for exemplification of theory
Reflecting-in-practice	Schön	For categorization of users and for exemplification of theory
Conscious >< tacit level of knowledge	(here) Schön	For exemplification of theory
Researching in the practice context	Schön	Interviewing/test (change of practice) - teaching ><learning curriculum
Five stages	Dreyfus & Dreyfus	For classifying users

The analysis sets off from this framework, to which I relate samples from the interviews, where applicable. Then follows a discussion of the users' learning strategies in view of my observations and related to my hypotheses.

7.1.1.1 Legitimate peripheral participation

You cannot empirically show the notion of legitimate peripheral participation on the basis of the user tests I made. Doing so would require a long term observation on the spot (in the users' offices) of the work routines among the users. Ideally one should follow the development of one or several newcomers without experience in the particular job function from the very start and to the point where they would have acquired as much experience so they would no more count as being apprentices, thus having been led to full participation.

However, you do find traces in the interviews, which may be seen as indications of legitimate peripheral participation;

"Today, I think I was more in the beginning, I was look but failing, with the colleagues, because we were too busy and nobody had time to help so I think maybe I was trying to phone you, the ITER Helpdesk, and eh, well I wanted to ask colleagues, but it didn't really work, for different reasons, and then in the beginning I asked you, the ITER Helpdesk, or in combination with the guides. That's what I remember I did in the beginning." (user 1, page 9[13])

This is a central statement in the tests. It tells us, that at the stage where the user lacks experience (she is peripheral to the task and to her team), the method of learning is shaped by the actual context. User 1 wants to get direct help from her colleagues, but as this proves impossible due to workload, she turns to the Helpdesk and the guides. Both come to play an important role in user 1's learning process, although she prefers personal help:

U: I have as a person, it is easier for me to just ask somebody, that's how my personality is, not to read this book , it's to communicate with the people, directly, that's my personality, OK. Eeh what did I do, for some with this situation with the depots, then I as you understand, I went to my colleague X, but she was too busy, she referred to – because I wanted her to have her on my side – because I was really new and it was the first time and the second time I was doing the depot, I wanted to have her next to me while I was doing it, as a kind of, and then she, but I think she was too busy like everybody else, and she referred to, use the ITER step by step guide. (user 1, page 9)

Nowadays with her recent experience User 1 belongs to the experts; she participates fully as what regards this task (sending document to translation):

I: First of all: Now you went through what I know is for you a completely normal task as you told me before that – if you had now been "forced" by me to follow the guide, you would have done it in how much time?

U: Well, I don't know, one minute! Maybe I look at it a too optimistic, but normally I know where to go and I don't need normally to use the guide to complete the send document to translation. (user 1, p 6)

Nevertheless, also full participation can be differentiated – one thing is performing routine tasks, another is a complex situation like the redépôt. I asked user 1 about the guide for making this operation:

[13] All quotations from the tests refer to "Complete transcriptions" in chapter 9, Annexes

I: Did it help, did it help you at that time?

U: Yes, it gave me some information; I don't remember now the details, yes, it helped me, short answer, but maybe it was not all the answers in this one, because then it is communications, telephone calls with people around, yeah, but this was a complement

I: I have tested it myself and it is almost impossible to test that situation, I wanted to test it

U: But it was not only, because that was a complement, because in this situation you really, you cannot have all this in the paper, you have to speak to where is the document, in which state, in which status is exactly now in the flow, so there you have to communicate with other people, it's not enough to have this one
(user 1 p10)

From this statement you can deduce that even though user 1 would seem to be in control of the situation in case of a redépôt, the nature of this task is not routine. Hence the nature of the participation also changes, so the user should draw on a wide spread set of learning resources.

7.1.1.2 Learning resources

In the context of using ITER I will define learning resources as elements of information related to ITER tasks and coming from anything a user could base learning on: Colleagues, manuals, training courses.

7.1.1.3 Teaching curriculum versus Learning curriculum

While working with the user interviews it became clear for me that the notions of teaching and learning curriculum cannot be analysed separately. The reason why is that when a conflict occurs between what is supposed to be learned (Teaching curriculum) and what is actually learned (Learning curriculum), the two become intertwined in the users' statements.

The following two examples show the difference between what is explained in the guide and what seems to be the practice in the real working situation:

In the first example the user draws on her experience with the application in order to show that at a certain step the guide is insufficiently explained (how to search for an Actor):

Example 1:

Eh, OK and here I had something, I had to put “Henrik Lauritzen”,so is he there, can I get him, like that, Lauritzen, is it like that, yeah, and then I am the assistant, and as well as the secretary. OK, so did I like this, actors, so actors are available in the dossier, this is – here you should add more in the manual, how you, it is insufficient to, normally, it is sufficient to enter a couple of the first letters and then you tick on this one, search, tick on the “find” button, and that normally is enough, sufficient to type the first letters of the surname, so that you should add in this manual, and then information original lang.., (user 1, p 4)

Whereas the second example refers to a step “Reserving Feuille de Route”-number (or “FDR”, it is the “Ticket” to the translation service) which is explicitly explained in the guides[14] as a step which can be performed in two ways: Either the user can create a document and decide to wait for reserving this number (by following Guide 3.01, leave out the option “Reserve FDR-number” and later follow 3.03) or the user can create it right away (by following guide 3.01). In practice it seems that most users go for the second option, but all the teaching material explains the first option in details. My test was also designed in a way so the user should follow the guides and reserve the FDR-number, but it was not explained at which stage. This is probably why user 2 gets confused– during the test she reserves the FDR-number and then she asks for assistance:

Example 2:

U: I click event/document, so this is not the right one or this is the one?

I: This is the right one,

U: OK, ah OK yeah,.....so do I have to reserve a new feuille de route-number?

I: If you already reserved a feuille de route-number, you don’t need to do that again.

U: OK, so I can jump to this one

(User 2, p 12)

[14] And also in the ITER courses, see the manual for ITER Module 2 and 3, Chapter 9, Annexes

Both of these examples might seem less important, but they could nevertheless lead to unnecessary confusion in a busy working life. Basically they are examples of that teaching material should adjust continuously to the practice (at least as long as that practice proves more obvious for users to follow).

7.1.1.4 Using Schön's typology

Although it should be kept in mind that reservations should be made against analysing cognitive questions alone on the basis of verbal expression (see Chapter 2 " Epistemology"), the users still give statements during the tests which could fit into Schön's typology. A complete analysis could focus on interaction between the user and the ITER application during the tests; but as the focus in this thesis is on the guides I have decided to leave out the before-mentioned approach.

7.1.1.5 Knowing-in-action - Reflecting-in-action - Reflecting-in-practice

An example of Knowing-in-action in this project is for instance when users move the cursor around on the screen and click with the mouse. Today this is a basic skill in human-computer interaction and none of the users reflected on having to do so in the test. This happened regularly with other tasks; when users got doubts about how to perform a certain action the user often paused, while considering the next step to take and if still in doubt then asked some clarifying questions to the test responsible (and interviewer – "I"). I would classify this behaviour as Reflection-in-action, because the reflection happens on the basis of an already acquired experience in the given field, where the element of surprise and uncertainty lead to first non-verbal reflection and then asking questions. The example below is taken from user 2:

U: (long break 17:59) This doesn't actually say how to select the languages, select languages. This starts to complete distribution, but isn't available here. I do something wrong?

I: Oh yes, it says, first it says complete the information tab distribution, and then afterwards it says "click checkbox distribution" and it should be the other way around.

U: Click checkbox distribution where?

I: It's there

U: OK, OK, it would be better to tell where it is

I: Uh hu

U: OK, actually you haven't (incurred…?) any instructions for this…I don't have to anything?

I: No, you don't have to

U: OK, (long break…) hmm, yeah, now it asks me for information, because I click the Distribution button I suppose it would it would (…?) distribution code? Didn't it wants to have a document title? I suppose so I should think, and if I have instructions

whereas user 1 clearly draws on elements of repetition (eg "I take the number before I get the content, so it's always in preparation when I take the number.", "OK, and then I'll normally take the, can I have a pen? And then I don't know if I need it, but I will note it as I normally do in my office" (see full quotation below)) from her experience while performing and explicitly reflecting while doing – which I will classify as Reflecting-in-practice

Example 2

U: COD with amendments, Codecision first reading, approval with modifications, we choose that template, select document status In preparation, but I'm going to send it, so it's already, wait. Logic In preparation when I work on it, do I work on it, I don't know, normally you know, in my office, when I work, I take the number before I get the content, so it's always in preparation when I take the number. Then I prepare the document in DocEP and when I go back to ITER, that would be, when I send it of course, active. So select, ah, and reserve, if a Fdr is needed – of course it is needed, or didn't you want me to do it immediately? Yes, reserve also feuille de route number, OK, so I check this box and then I tick on create, and on this one, is it correct, it takes some time …it's the timeglass, and it is, da, da, da, the document has been created, OK, and then I'll normally take the, can I have a pen? And then I don't know if I need it, but I will note it as I normally do in my office. (user 1, p 3)

7.1.1.6 Conscious >< tacit level of knowledge, Researching in the practice context

While reviewing the video files from the first part of the test – where the user should perform a task - you can follow the interaction between the user, the guide and the application ITER. Simply speaking, the user's tacit knowledge becomes noticeable, when she is acting at the screen without asking questions. This is of course a rather basic observation, but user 3 (whose only experience with ITER was a course she had followed three weeks before the test) puts this into perspective:

I: You went through this, OK, what do you think about the guide?

U: Well, if you would only, it's fine, if you would only, if you follow all the steps, you can do a lot by yourself, but if you are not familiar to type of documents, family names and so on, that's why you look a bit more about, because you are just thinking you are unfamiliar to it, but I think it's not the guide it's a problem, it is just being unfamiliar to the work, if you get to use it more and more often, you would notice very quickly
(user 3, p 23).

User 1 reflects on her professional development:

U: But the step-by-step, it's good, really when you are a beginner, it's a safe way it's difficult to fail

I: Also from, eh?

U: I remember, especially with the depot from the start, and I started four years ago, but I didn't do the depot immediately, so maybe three years ago, when I did my first depot three and a half years ago, I remember it, but then the ITER was excellent, really, saved me, no (xxx) the step by step I was nervous and I was told that, oh My God, I will have to the depot in DocEP and in ITER and yeah, but, look at the ITER step by step guide, and I am just following step by step and actually that, the meaning and then it was not possible to fail, eh. So that's, I remember, strongly (user 1, p 8)

But now she has clearly shown in the tests (ie with the previous example with the Fdr-number in paragraph 7.1.1.5) that she has reached a level, where she is able to reflect in practice and also correct a deviation from the practice; she is in Schön's terminology a *researcher in her practice context*.

7.1.1.7 Five stages

When I picked out the three users for the tests I had already quite a good idea about how they would fit into Dreyfus's model of five stages.

User 1 had at the time of the tests three years of experience as a committee secretary, User 2 had around six months whereas User 3's only experience with committee and ITER- work was a course she had followed three weeks before the tests.

By combining my observations from the tests and quotations from the user's comments during these, I will attempt below to categorise these three users according to Dreyfus' model:

User 1 Expert
User 2 Advanced beginner
User 3 Novice

User 1 Expert

The following quotation underlines that User 1 understands and masters the task by intuition. She can perform the task while reading and commenting the guide at the same time; including comparing with what should we have done in a "real" practice situation (check and note the number).

U: 8 9 5 3 4 3, 895343, so OK, and then I have the PE-number also and I note it, 351dot922 and of course, I know, it's a version one, it's the first draft report, OK, so that should be done. What – do I have to do anything, more, on this manual? I've done a mission, the first part, but..PE-number….PE-number, shows overview in the right pane, so that should be OK, that's good, it says here, so I can see the PE-number, that I do automatically, mee, but if I have to use the manual on this, yes, that's quite good explained, ehh, "tab event document", PE-number is shown on the overview in the right pane ,right pane, document right, good, so "you can right-click on column-header to show". That's what I sometimes do, also myself in the office, I double-click on it and I check, did I note, the correct Feuille de route number, so I go here, click! 895343, double-check, right good

(user 1 p 3

User 2 Advanced Beginner

User 2 acts obviously much less independently than user 1. She is really trying to follow the guide, so a missing explanation (in this case how to select languages for translation, guide 3.05, p 3) becomes an obstacle, and I have to intervene:

U: Now I have the problem that I didn't note the PE-number, so I go back and search for it

I: Then you should go back and search for it

U: OK; as it wasn't in the instructions, so I'll start again….(long break 13:07)….so I keep the deadline time

I: Keep the deadline time, because, but normally you have a deadline

---

U: (long break 17:59) This doesn't actually say how to select the languages, select languages. This starts to complete distribution, but isn't available here. I do something wrong?

I: Oh yes, it says, first it says complete the information tab distribution, and then afterwards it says "click checkbox distribution" and it should be the other way around.

U: Click checkbox distribution where?

I: It's there

U: OK, OK, it would be better to tell where it is

(user 2 p 12- 13)

User 3 – Novice

As already mentioned User 3 had no working experience with ITER, so I had to intervene several times when User 3 was in doubt. Afterwards she stated that although she found the guide rather easy to follow she probably would have needed help if this was something she would have to do in the office:

I: So you didn't at all – you didn't find it difficult to use it?

U: No

I: But there were times when you had to ask

U: Yes

I: So obviously in a real working situation you would not have been able to create a document without

U: Without asking you, yes, probably, yes

I: Or wouldn't you have asked some colleaugues?

U: I think I would have asked first my key user

I: Yes

U: And then maybe one of you, ha, ha
(user 3 p 23)

7.1.2 User's learning strategies

In the previous subchapter I have related samples from my interviews to those theoretical terms which I find relevant for analysing and discussing my hypotheses about how non-personal support products, concretely the step-by-step guides, can help the user's learning while using ITER. In this subchapter I will further develop this discussion with a view to conclude on my observations.

7.1.2.1 Using a support product versus getting personal help

During her learning process both User 1 as well as User 2 have applied different strategies in order to seek support for their ITER working tasks:

Help from colleagues, helpdesk

When User 1 as a beginner was facing a new task, she turned to personal support (colleagues and/or helpdesk. A particular example is the complicated task of doing a “depôt”.
User 2 was helped by a colleague to do the first send of a document, which she had to do before she had been through the formal training. In fact User 2 gets a training by her colleague, as "she told me what to do":

U: [....] I have had the first time I did I had somebody to tell me what to do

I: Was that one of your colleagues?

U: Yeah, it was X, but after that I went to think, yeah, well it was also, it’s, we went through it in the training

I: The first time you sent a document, was that during the training, was that after the training?

U: Actually we did it with X before the training but I didn’t, because I didn’t have the rights, so I didn’t do it myself

I: So first you had to do it already before the training, and then you did?

U: In the principle, yes, but X did it

I: With her own user right?

U: Yeah, or I did it, actually, probably with her user rights, but she told me what to do.

(user 2 p 15)

User 3 has not yet in real life tried to send a document to translation, so her answer is only hypothetical. She is, however, convinced that she would need assistance the first time (see quotation in paragraph 7.1.1.7 **"Five stages"**, sub-paragraph **User 3 - Novice"**)

It is an important observation that User 1 is so clear in her statement about using guides versus getting personal support ("it is easier for me to just ask somebody, that's how my personality is, not to read this book , it's to communicate with the people, directly, that's my personality, OK.", paragraph 7.1.1.1). This is one good example of how learning resources are drawn on in multiple ways in the concrete practice situation. It is also an example of those challenges adapting a support tool to the working context has to meet, simply because human personality plays an important role.

Complexity factor: Using the Redépôt note:

Another important determining factor for how a user draws on those resources available for learning and support is linked to the level of complexity of the tasks.

In the following quotation User 2 describes how she dealt with her first redépôt (or "retabling"). The sample is rather long, but difficult to cut too much without losing the meaning, so I have chosen to bring it with a few division marks between parts (---):

I: The last time we made a test, and I interviewed you about the step-by-step guides, you had not tried to make a redépôt yet. Then came up that opportunity, so to say, during this week. Can you tell me a bit about what happened?

U: Well, it's a dossier where we have Co-decision procedure, we've had consultations with the Council and we had the same kind of text, the text actually would be the same as in the Council,

I: huhuh

U: and the Tabling Office made some linguistic changes and we sent the changes to the Council, and we thought they'd be accepted, but after a few days they send us a message that they want to keep the old version of word

I: and what happened then?

U: so them, ah, uh, yeah, then the administrator ("name") she contacted the Council Precidency's person who is responsible for this

---

I: You had just got the information from the Council

U: Yes, so, they agreed to keep the old text in (incomprehensible) correct, in the meantime I had contacted the Tabling Office for advice for what would we have to do if we have to change the text and also of new version of the text where this vote would be - and I send both to ("name")

I: Yes

U: Our administrator and the Council's (incomprehensible) representative working that day - and I sent, I got from the Tabling Office the information until when it would be possible to do a redépôt, and

I: Yes

U: And I followed these instructions

I: I believed the Iterhelpdesk sent these instructions to you?

U: Well, I actually had them already

I. You had it printed out already?

U: Yes, so I used these instructions to write an e-mail

I: Here we talk about the note about the redépôt

U: Yes, so I wrote an e-mail asked them to interrupt and I phoned everybody, and I was planning to do the redépôt the next day because it was ready in the evening

I : Yes

U: so we received another e-mail from the Council which we understood that they actually now want to have the linguistic correct text of the version that had been sent so I had to make a new note about the modification

I: which was a mail to send out again about the modification?

U: yes a mail to send out, because first I had sent a mail about to say we would keep the old text, and then I had to send a mail about actually change to something different, but it was the same thing

(user 2 p 26-27)

I: Did it stress you?

U: Well, it was a bit dreadful situation the council, because we did, it was a bit complicated. the administrator was on holidays, had a day off and I shouldn't actually be in contact with the Council, because I am a secretary, so they should go to her, and then there was different kind of replies from the Council and we actually didn't know what was the situation until...
(user 2 p 27)

This is a good description of a chaotic working environment, in which User 2 has to solve a complex task within a tight deadline. She has to deal with uncertainty and complexity at different levels:

1. Get confirmation for which text to use, as she gets different information about which changes have been approved or not.
2. Coordinate actions with different colleagues and services (the responsible administrator for this dossier in her committee, Tabling Office, the contact person in the Council)
3. To a certain extent bypassing her job description
4. Managing the technical part of the modification of the document

I asked how the guide had helped her; also with a view to get more information about how it supports the technical aspect (the guide for redépôt gives guidelines for administrative as well as technical steps to take):

I: Could the guide help you with that?

U: Resending note? It helped me so I didn't gone (?) these instructions so I followed these instructions..

I: So the instructions in the guide were helpful?

U: Yeah, they were very helpful

I: But you needed other information, which was then not mentioned in the note?

U: What do you mean?

I: Well, for instance that you had to make some modifications the text and to the content of the text that was of course not in the note,

U: Yes, of course

I : But the fact that another change came later on, this possibility was not described in the note either?

U: No, but I think that you should actually think for yourself, I don't think that it needs to be mentioned, but there is a possibility there, yes.

(User 2 p 27)

I: OK; do you have any specific comments to the guide?

U: Well, I can tell you what I thought, first thing that was good the layout there, because I had read these instructions on beforehand to make sure that I had all the information, and I knew that I had to do this redépôt B

I: It was the one where you have to do a new version of the document

U :Yeah, but I actually started using these

I: The A

U: Yeah

I: And X told you that it had to be version B

U: Yeah, I think I could have noticed it because you would have to do it differently..I knew that I would have to; another thing that I skipped was the first part follow the step-by-step 3.6, because that I also know but I had forgotten, when I started how to do it, I forgot to take the new version number from ITER, but that was not the problem, because in DocEP, because I didn't need the Fdr-number, so in the end I could just put version 3 in and do that thing afterwards.
Then there are instructions how to copy the files from EPADES, so the files could be actually used; that it's the right file. It wasn't difficult, but I actually took, just to make sure that I don't lose anything, I took extra copies and copied them somewhere, so it took some time to find them. The problem I had, when I was, well, I dod not regenerate the X i doc pages

(User 2 p 29)

It becomes clear while reading this sample that each redépôt is unique and therefore the guide for this task is not as "waterproof" as the guides for routine tasks. When dealing with a redépôt the user has to draw on several resources and act simultaneously. For such cases the support tool - here the redépôt guide - cannot stand alone; however, User 2 could still rely on colleagues and her own sense of judgement, so she did not actually contact the helpdesk. Just as with the previous example with User 1 the user draws a lot on support from people, who are available and competent within the context, but in this case the guide still plays an important role for her as a catalogue of instructions to proceed with.

On the basis of my analysis of these test samples you cannot conclude unambiguously on my hypothesis concerning the user's approach that she prefers to seek personal help instead of using support products while being under pressure. Instead a more complex picture is outlined, of how the user makes her choices on basis of the actual situation:

1. Nature and complexity degree of the task to solve
2. Available "non-personal"-support (= the guide)
3. Available support from colleagues who are relevant for the given task; in the concrete case from her own service (the committee) as well as the corresponding services (the Tabling Office, in the Council).

The concrete mix of the above is then again determined by the user's experience as well as her character as a person; it is likely that User 1 would have reacted differently than User 2 in such a situation. Furthermore, by applying Lave & Wenger's terminology of the *learning*

curriculum[15], we have in point 2 & 3 a description of those learning resources which are necessary for the ITER user and thus also for the support. This is important information: It tells us that the guide has a central function as a basic support tool but that it cannot stand alone. Hence the guides should be written with this in mind; and they could get added value by describing not only the concrete task seen from a technical point of view but also with more emphasis on the working context the task is a part of. It is clear, however, that the "personal" aspect of the support in any aspect remain necessary.

7.1.2.2 The relevance of user experience to the routine task guides

Sending a document to translation is a routine task for a committee secretary. Hence the aim for the guides used in the test"3.01 Document creation", "3.03 Reserving a FDR number" and "3.05 Sending document to translation" should be to support such a routine task, which comprises many repetitious actions, although with many options depending on the nature of the document to be sent.

Not surprisingly, the tests showed that the newcomer (User 3) is unable to proceed without following the guide meticulously, and solving tasks turning out to be difficult; without personal help.

It is also not really surprising that the expert (User 1) does not need the guide at all (the task would take her "one minute"). Although User 1 explicitly prefers personal support ("to ask somebody") she has been using the guides from the beginning; sometimes in combination with asking for help (when becoming stuck); or as a second option, because colleagues were not available ("too busy")

As a general rule for User 1 the more complex the task (eg a "redépôt"), the more she draws on personal assistance and communication with colleagues in the organisation ("other people"). The guides seem, however, still important in those cases, but she does not need them anymore for simpler tasks.

What remains as particularly interesting is how the guide could be differentiated in relation to the user who has some experience, and therefore does not need to follow the guide by each step.

In the following quotation User 2 reveals that she uses the guide(s) as a check list:

15 see definition in chapter 4.1.1.1: *"a field of learning resources in everyday practice viewed from the perspective of learners" (Lave & Wenger, 1991, p 97)*

User 2

I: OK, now you have noted down your comments, which you have there, what in general, eh, well, what is your general impression of the guide?

U: Well, the guide is good, the general impression is so, I have been using these before and I have been able to do it, but then again, I have had the first time I did I had somebody to tell me what to do (user 2 p 15)

I: So I got it right, good. Just a bit back to the guide there, do you find it too detailed?

U: No

I: You put comments in, so you, actually, you need more details?

U: There are a few, if, it depends, what you want from the manual, if you actually want it to be so perfect

I: Step by step?

U: Just be following the manual, there are a few places where you don't know what to do unless you know it from somewhere else

I: Still if you create a document today, then you use the guide?

U: Yeah, I at least check from the (…) when I do the

I: You use it as a check list?

U: Yeah

(user 2 p 17)

Then I show her the alternative layout - the short-list "MEMO for document creation and sending to translation from ITER", and asks her what she thinks about it:

User 2:

I: Yeah, then I want to show you something else. Just take your time to look at it, and then tell me if you could something like that instead

U: (long break) At this point I could use this, but not in the beginning

I: No, OK ,OK, what do you prefer now?

U: If there is only one

I: Yeah

U: Ah, this

I: This one?

U: Yeah

I: The step by step guide?

U: Yeah because there are, in a ways this are better in a way that, in that respect that you can see but then you would need more, more information underneath, so in a way this is, but for example that you do the first time and you don't actually, you'll have to know that you have options here and..

I: That is, yes I understand, just for the interview, here we talk about the printscreens, so the printscreens help

U: Help, yeah

I: But you need much more detailed information

U: Yeah, you would need more information here underneath, basically this might be a better format, but you would, because then at this point it's just good, check,

I: Yeah

U: Check that more or less now, that I needed fill in these, but I would also need some information about this preparation, fill in,

I: You need some accurate information

U: Yeah

I: About the fields

U: Yeah, so basically there could be something like, it's all here in italics, so you could check

I: Like the notes, which are in the guides, OK, do the colours help you?

(User 2p 17 -18)

Now it should be noted, that naturally one test person's only statement cannot serve for generalisation, but when you take into account her level of experience (advanced beginner) compared with the two others, it is still a hint that making a short list for users at an intermediate level of experience would perhaps not be worth the effort; at least in this working context.

7.1.2.3 About the layout of the step-by-step guides:

Testing the guide layout more profoundly would have required a set-up enabling registration of the user's eye movements. This was not technically possible for me; so apart from the recording from that part of the test, that is linked to task performing; the layout became subject during the interview part at the moment I showed the "MEMO" short list as a possible alternative. In the quotations below references are made to this MEMO as well as to the layout in general for the guides already known by the users.

User 1:

I: So, apart from the comment you made, which goes on the content, some things are missing, what do you think about the layout?

U: Yeah, now the layout is not really, maybe not OK, you have to read and, hm, hm, it's a bit heavy, ah. I prefer – I saw the other MEMO-thing – I prefer the print screens, I think
(p 7)

U: But for me I like this layout much better

I: OK, and why is that – is that because there are printscreens?

U: Identical to the working environment, and you have already, you don't have to feed in some extra work, when you see it here, when there are pictures, so it's enough, you read on this, which is identical to the screen, the pictures, so this is really, for example, this is very nice, reserve feuille de route number and just an arrow, a big arrow where you see where it is: Create, huhhuh, dossier detail, but OK, here for example the point one, I don't know, maybe, how to open the dossier, it doesn't explain in this memo.
(p 7)

User 2:

I: Like the notes, which are in the guides, OK, do the colours help you?

U: They help, yeah

I: Why?

U: I don't know

I: What if you?

U: They do, I think the icons is here, to speak, spoken, because in black and white version I often don't even remember to look at the icons, because I don't really find it there, I usually do it mouse and so go on the bottom of the icon and see what it says there and if it's not the one that then I start at actually looking at the icons, but here it's you can spot them better
(p 18)

User 3:

I: You went through this, OK, what do you think about the guide?

U: Well, if you would only, it's fine, if you would only, if you follow all the steps, you can do a lot by yourself, but if you are not familiar to type of documents, family names and so on, that's why you look

a bit more about, because you are just thinking you are unfamiliar to it, but I think it's not the guide it's a problem, it is just being unfamiliar to the work, if you get to use it more and more often, you would notice very quickly

I: So you didn't at all – you didn't find it difficult to use it?

U: No
(user 3 p 23)

And when shown the "MEMO" User 3 find screenshots helpful (but not a short-list) :

I: Would you prefer, now I know that this is the first time, so this guide is very detailed, here's an example of a guide which could, which is less detailed, which is more like a job list

U: Yeah

I: Then it has screenshots in

U: ehm, I don't think it would help me more than this one

I: No?

U: I think here you follow it step by step

I: Then if there are screenshots in that guide, the detailed step by step guide, would that help?`

U: I think it would probably help more

I: Ja?

U: Yes

I: There were sometimes where you couldn't find your way around, because you looked at the, you looked for the reference at the window, I noticed that, and then you lost way around

U: Yeah

I: Yes

U: Yes, and also because it's quite easy to find here the numbers to use, but again, it's because I don't use it, so I don't have them

I: That's it

U: Yeah, there no text to go and check

(User 3, p 24)

Although the guides are made in colours, most users only have the possibility to print them out in black. Especially user 2 states that colours help understanding and finding her way around. As what regards the use of screenshots all users in the test state that they would be of use.

7.1.2.4 Conclusion about layout and differentiation of guides

In the table below I have listed the most obvious findings linked to the guide layout and user experience:

	User experience	**Needs step-by-step guide for routine task**	**Could use a short-list ("Memo")**	**Prefers guide with screenshot to guide without screenshots**
User 1	Expert	No	Perhaps (does not say directly)	Yes
User 2	Advanced beginner	Yes, for check-up	Yes, but prefers only one list as preference, with the whole information. Notes in italics would be helpful	Yes
User 3	Novice	Yes	No	Yes

7.1.3 Conclusion on Research Question and hypotheses

The analysis of the tests gave indications for approving major parts of my hypotheses, but not for the whole set. In general the analysis gives a more ambiguous picture. I will in this subchapter discuss each hypothesis on the basis of my findings.

Main hypothesis: The concrete practice situation determines whether the user will use available support products or personal and attentive help.

The analysis supports this hypothesis, but with the finding that the more complex the situation the more personal support is necessary. Complexity may in this context consist of these factors:

1. difficulty level of the task (eg. sending a document to translation is a low level difficulty task compared to the one of a redépôt)
2. stress (because of deadline and difficulty level)
3. the user's experience level

Neither of these factors is in itself determining, though. For instance, the user's experience level is definitely important to the extent of how personal help is drawn on, but the interviews showed that except for the complete newcomer, both the expert user and the advanced beginner could get a long way in their daily work with the guides, before asking a colleague or contacting the helpdesk. On the other hand the expert user clearly stated that she would in any case prefer to communicate with people. This statement leads me to add an extra element to the complexity factors, namely:

4. the role, which the user's individual character can play.

Further studies in a similar context with a combined focus on learning in a community and individual behaviour might lead to a deeper understanding of how the personal character influences the practice situation.

7.1.4 Hypothesises concerning the user’s approach

The users in general view support products as being too complex and time consuming.

This is actually not really the case - the guides are seen as an important help by the user; but the complexity of the task plays an important role for how and to which extent the guide is used.

The information is often not relevant enough to the task in question or it lists so many options that the user becomes confused.

The test shows clearly that the content of the guide has to be consistent with the practice. On the other hand this opens for a discussion about where to set the limit for adapting the guide to the user's practice; as the nature of the guide is also to shape that practice. Obviously technical and organisational limitations will have to be respected.

Being under pressure in a working situation the user prefers to seek personal help instead of using support products.

On basis of my findings this hypothesis cannot be proved. Whether the user prefers to seek personal help or opts for using a support product, here a guide, may be a matter of personality, although the user's level of experience and the task complexity play a role. What I do find is indications of a learning strategy consisting of a mix of:

1. Using the guide as a textbook providing the instructions for how to solve the given task.

2. When the user cannot find a relevant instruction in the guide to a given work task, she opts for drawing on personal learning resources (colleagues, helpdesk).

But assuming that pressure and stress in itself pushes the user towards personal support seems to be too simplified a conception.

7.1.5 Conclusion on Design as a support tool:

Adaption of the support product to the user’s expertise level promotes the learning process

This is a hypothesis which I have formulated with inspiration from the conclusion of my pre-study (see paragraph 3.6 p) in which I propose to differentiate the guides in relation to the users level of experience. As shown in the table in paragraph 7.1.2.1 the two test respondents who are not experts might consider a shortlist useful, after having seen the alternative

MEMO-guide. However, the advanced beginner prefers to have only one guide and as complete as possible, so it can it serve as a check list; which is also a view shared by the novice. Hence these statements speak for opting out the need for a differentiated guide as an alternative option for the user who has passed the newcomer level but not yet reached an expert level.

Seen in a wider perspective it is not possible to draw a firm conclusion on this hypothesis. My tests have provided a range of explicit answers, but this is not enough empirical evidence for concluding further than as what regards the ITER guides. Further research with a strict focus on the use of differentiated support products would be likely to reveal more complex data on this topic.

Visual examples promotes the learning process related to the use of software

That visual features like images, screenshots and a contingent layout play an important role for the user's perception is evident in the test results.

One good example is that the novice might not have lost her way around if the window reference numbers had been illustrated with screenshots. And the expert called implicitly for a "lighter" layout for the standard guides with inspiration from the "MEMO". Unfortunately more concrete information does not emerge from the interviews about the meaning of this, but as one of the major differences in layout between the MEMO and the standard guide is that the first contains screenshots, where the latter is more textual, I take it as another indication for giving the visual dimension even more priority in the guide - and more generally in any non-personal support product.

7.1.6 Theoretical approach

7.1.6.1 The learning dimension

My theoretical framework, based on Lave & Wenger, Schön and Dreyfus & Dreyfus[16] for my project's learning dimension, had two main contributions for the analysis of my research question and hypotheses:

1. **As a means of categorising users for the empirical test with a view to their level of experience.**

   That was in particular the use of Dreyfus & Dreyfus with the notion of five stages of

[16] for all references see chapter 4

skill acquisition, although terms and notions from all three theoretical authors certainly also contributed.

2. **As a means for analysing users learning strategies in relation to their level of experience.**
   At this point all three approaches could contribute equally
   a. Lave & Wenger with the notion of legitimate peripheral participation and the notion of learning and teaching curriculum. Both terms have served as analytical tools for deconstructing user learning strategies in the social context of the committee work organisation in the European Parliament.
   b. Schön with his typology of notions of practice with a view to analyse users' learning strategies at an individual level; and in particular with a view to deconstructing the mix of tacit knowledge and explicit knowledge.
   c. Dreyfus & Dreyfus with the concept of skill acquisition; here similarly to the application of Schön's typology with a focus on learning strategies at an individual level; and as an analysis of how knowledge may manifest itself at an intuitive as well as conscious level; depending on the user's skill level.

Where the approach of Schön respectively Dreyfus & Dreyfus, may overlap each other in the focus on the individual level; the terms I took from Lave & Wenger work supplied well this focus by including those learning resources, which are present in the user community.

7.1.6.2 The Design dimension

7.1.6.3 Using Thorlacius' model for visual communication [17]gave the possibility for making a thorough analysis of the guide design with a subjective approach. But as this approach was based on my own proper subjectivity, it had also limitations with a respect to analysing the design's impact on the user's cognitive level. Apart from observing during the test I tried to overcome these limitations by following up the tests with an intermediate interview.

Had the aim been to investigate further the interaction between human cognition, the guide design and the task to perform, it would be necessary to include

[17] for all references see chapter 5

physiological theory of eye and hand movements with a view to map the link between steps in the guide and the user's performance.

7.1.7 Methodological approach

7.1.7.1 Quantitative validity

I have already in chapter 2 "Epistemology" discussed the possible contribution that an application of quantitative research methods could have made in order to reveal if specific sociological patterns in the ITER user community would influence the ITER users' learning processes. As I opted out following this path the discussion remains hypothetical, but nevertheless the question remains open.

Another question which could give rise to criticism is whether the test respondent group of three users would be big enough in order to produce valid information. Clearly this was a matter of practicality and had I had a larger group of respondents I would probably have got more diversified observations and statements for the analysis; however, I do not believe that this would have changed the overall picture.

7.1.7.2 Qualitative validity

While evaluating The Modified Thinking Aloud[18] method the main question to ask is if it could serve to produce valid empirical information, while taking into account the discussion of the question of verbalising cognitive processes.

In chapter 2 I have described how one respondent refused to give up speaking while performing the test; whereas the two other respondents spent so much time on the task that it would have taken all too long to review the sequence before doing the interview.

Nevertheless, the focus on the printed guide was kept by the respondent while performing the task as well as in the follow-up interview. Hence I do not see the deviation from the planned sequence as a major flaw in the production of empirical data. For another time, however, dividing the sequence in shorter sub-tasks to perform would facilitate the possibility of keeping the pace of sequences as originally intended of 1) Task to perform, 2) Replay with respondent as spectator, 3) Interview. The result would then be a set of sequences for a task with a similar complexity degree to the one used in this project.

[18] for all references see chapter 2

7.1.8 Perspectives

Apart from my concluding comments above I would like to mention a few possible paths to follow should one wish to further investigate the question of interaction between non-personal support products and the use of an application specific to a working environment.

7.1.8.1 Future focus on the interaction between personal and non-personal support

Probably the most conspicuous finding in my analysis is that the presence of human resources as a learning resource plays a very important role. Studies of differentiation of support products could most likely benefit from including the field of human resource studies - as personal support can be differentiated as well. Also psychological studies of personality types could contribute to enlarge our knowledge of this particular part of the research domain of Information and Communication Technology and learning processes.

7.1.8.2 Methodology

7.1.8.2.1 Besides further developing the Modified Thinking Aloud method, it could with advantage be combined with ethnographical methods for observing real working situations; ie. the Actor Network (ANT) theory[19] as one example of many.

And with these lines you see the shape of a new project...

[19] To which Bruno Latour's "Reassembling the Social" 2005, is an excellent introduction

8 Literature

8.1.1 Primary literature

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9 Annexes

The original files are on the DVD which is delivered with the printed project

Step-by-step guides from the test

- 3.01 Document Creation - get PE number
- 3.02 Adding title to document
- 3.03 reserving fdr number
- 3.05 Sending document to translation
- 3.12 note about redepot
- MEMO for document creation and sending to translation

Test files

- Test description

Video and audio

- User 1
- User 2
- User 2 retabling interview pt 1
- User 2 retabling interview pt 2
- User 3

Transcriptions

- Complete transcriptions

ITER Course presentations

- ITER Module 1
- ITER Module 2
- ITER Module 3
- ITER Module 4

FAQ

- Frequently Asked Questions (all)

User survey (prestudy)

- Results
- Who answered
- Survey form (pdf)
- Survey form (Infopath)
- Survey link on web

Diverse

- Guidelines for the step-by-step guides