

## OUR INTERVENTION CONTEXTS VARY ... BUT WHAT ABOUT OUR PRACTICES?

### **FRANCK BERNARD**

SNCF, Direction Grandes Lignes,  
AVHec (3<sup>ème</sup> étage), 2 rue Traversière, 75 571 Paris Cedex 12, France

### **IRÈNE GAILLARD**

Institut de la Promotion Supérieure du Travail - Conservatoire National des Arts et Métiers  
39 allées Jules Guesde, 31 000 Toulouse, France

### **AUDREY LALUMIÈRE**

Ergoconseils  
4925-E du Sourcin, Saint-Augustin, Québec, Canada G3A 1E3

### **FERNANDE LAMONDE**

Université Laval, Département des relations industrielles,  
Sainte-Foy, Québec, Canada G1K 7P4

## **SUMMARY**

Ergonomists are adapting their intervention strategies to the contexts of their interventions. However, what means do they use to deal with the variability in these contexts? The responses put forward during this plenary session are the result of an examination of ergonomists' real work. Three types of means caught our attention: Franck Bernard, a company ergonomist, reveals some personal intervention strategies that he uses to transcend the variability in contexts; Audrey Lalumière, an external consultant, describes learning strategies that allow her to deal with contexts that are new to her; and finally, Irène Gaillard discusses the collective means that are used to deal with the variability in contexts by illustrating her presentation with an analysis of the content of the last SELF conference. To conclude, Fernande Lamonde stresses the benefit in dealing with the concrete questions raised by the development of the discipline and the research, practice, and teaching "professions" that make it up, using a better knowledge of ergonomists' actual work as a basis.

## **KEY WORDS**

Professional intervention practice in ergonomics: aids in ergonomic intervention; intervention contexts.

## INTRODUCTION

by Fernande Lamonde

To close this conference, I was asked to address the theme of “*Ergonomics for changing work*” by mainly discussing professional practice. The terms of the “contract” were clear: I could discuss this subject by referring to my research work, but I had to include the collaboration of ergonomists in professional practice. This request converged with a paper that was being prepared on ergonomic conferences. More specifically, Irène Gaillard and I wanted to reflect on a contradiction: our conferences are, for some, very focused on professional practice, while in our opinion, although many field studies are related to it, very few address professional practice in detail, namely the knowledge and know-how that are expressed and constructed when an intervention is being carried out. In this rapidly sketched context, the following orientation of the plenary session emerged.

This plenary session examines a few of the individual or collective means used by ergonomists to deal with the variability in their intervention contexts.

The challenge that underlies its organization is the following. In order to look at the question of variability in our intervention contexts in a new way, it must be considered from a perspective that I would qualify as “intrinsic”, which means:

- 1) being interested in the means that we use to have the most success in dealing with it, rather than attempting to identify and define all the specific characteristics of the different contexts in which we have to intervene;
- 2) identifying these means by studying ergonomists’ real daily practice, rather than by attempting to reveal deductively the general ideas in this practice.

The benefit of studying professional practice to reflect on the tools for developing the discipline (and the research, practice and teaching professions that make it up) already motivates all of my research activities [6, 7]; I know from experience that this avenue is productive.

It is in this framework that my colleagues have been asked to develop three different perspectives on means of dealing with the variability in ergonomic intervention contexts:

- Franck Bernard, an ergonomist at the SNCF, reveals certain intervention strategies that he has developed in his professional practice and that allow him to transcend the variability in intervention contexts;
- Audrey Lalumière, an external consultant, discusses learning strategies that provide her with the tools for dealing with contexts that are new to her;
- Irène Gaillard, teacher-researcher, discusses the above-mentioned subject of conferences by considering them as a collective means of learning that we offer ourselves.

In the conclusion I return to the benefit of dealing with the concrete questions raised by the development of the discipline and the research, practice and teaching “professions” that make it up, using a better knowledge of ergonomists’ actual work as a basis.

To conclude, I would like to warn the reader right away that this summary does not satisfy the canons of scientific publications. The contributions are presented as more or less separate parts whose aim is to enrich the same reflection. They have, however, been written in a personalized form (that takes shape mainly through the use of “I”) without attempting to produce a homogeneous text with respect to form.

## PERSONAL STRATEGIES FOR MANAGING THE START OF AN INTERVENTION by Franck Bernard

On first consideration, Fernande Lamonde's request to reflect on what is stable, constant and systematic from one intervention to the next is foreign to my practice. My interests focus more on what can make my intervention more efficient, more pertinent, knowing that as a company ergonomist<sup>1</sup> I am constantly submerged by requests and having to manage relationships with partners and with structures that have existed for a long time in my company. This direction that motivated me in my previous reflections [1, 2, 4] can nevertheless be restated in terms that are closer to the theme of this conference's closing session, namely "What have I developed as a practice to deal with the diverse contexts in which I intervene and thus become more rapid and improve the quality of my interventions?"

### The status of the mentioned tricks of the trade

There are many obvious sources of variability between interventions. These can be sources external to the ergonomist (the project structure, the theme of the request, the moment of the intervention in relation to the interests of the project participants, the requester's or project participants' point of view about ergonomics, the number and quality of the partners with whom the ergonomist must work, etc.) or internal (prior history with partners in the project, intra-individual variability, knowledge, etc.)

However, there are also internal and external sources of stability in an intervention process. For example, the ergonomist's procedures (reference processes learned in initial or ongoing training), the use of standard contract documents or the use of tools aiding in the analysis of the activity limit the intervention process somewhat from the outside. Also, the ergonomist's sources of interest and intervention strategies are internal sources of stability during the interventions.

If expertise in a field is considered as being obtained by recognizing, in a context's unusual nature and intrinsic complexity, the characteristic elements of a more general class of situations for which practices have been developed, the development of one's competencies, becoming professionalized, produce an increase in the proportion of sources of stability in the intervention process. To develop this proportion of sources of stability, different means are available to the professional. Below, I will not discuss:

- the reinforcement of the external sources of stability that come in part from academic training and the formalization of professional practice (knowledge and know-how),
- nor the reduction in external sources of variability where means of action such as the training of non-ergonomist players and lobbying within the company can be considered in the development of standardized sociotechnical project-management methods.

To respond to the theme of this closing session, I will focus my presentation on the improvement of sources of internal stability, which is expressed, at least in part, by an evolution in "being" and takes shape through the action strategies reported here.

More precisely, I will present tricks of the trade that refer to constant subjects of preoccupation, regardless of the intervention contexts. These tricks of the trade are most often identified through retrospective reflection (in some cases, a very long time after the intervention) that allowed me to realize and to identify what was implemented and/or what

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<sup>1</sup> . My activity has recently evolved to include internal consulting in bringing about change and in human resources.

already existed in the context of the so-called intervention and that had a favorable effect on it (in terms of pertinence and/or rapidity). It results only rarely from a classical problem-solving process where, faced with a problematic situation, I develop new practices. Instead, it is an integrative analysis of several cases considered overall; this makes it possible to identify the pertinent aspects of the contexts and the good practices that are to be systematized.

Even if the generalizable character of these tricks of the trade is not guaranteed, each highlights, in its own way, a need for professionalization linked to the practical management of an intervention. They thus answer questions relating to “How?“, “What attitude should be adopted?“, “How should we behave?“ more than the question of “What should we do?“ whose answer is globally known by everyone but that should always be adapted.

### **A few tricks of the trade**

The situations presented here focus on the initial contacts between the ergonomist and the other players in the project. This early part of the intervention provides subject matter for the phases that are academically called: “analysis and reformulation of the request“, “development of the diagnosis“ and “proposing a process“.

Some will agree that the initial phase of an intervention is determinant because, in the first few minutes, the requesters and/or the ergonomist's future working partners deliver in a haphazard way their vision of the project, give a progress report, and propose the framework in which the ergonomist is supposed to play his role.

The ergonomist makes the most of his credibility in part by giving the people he is dealing with a first glimpse of his professionalism and his potential contribution. He must also understand the most important aspects of the project in order to develop a diagnosis and a pertinent intervention process while remaining very vulnerable since he knows nothing about the subject of the meeting nor, very often, about the culture of the people with whom he is dealing. It is therefore essential that the ergonomist be properly equipped to get the most out of these initial exchanges.

This awareness of the essential character of the initial interactions between the ergonomist and the other players in the project, like the lack of a practical professionalization tool developed by the ergonomic community, has prompted me to develop four types of processes:

- analysis of the project team's discourse;
- analysis of the communication media used by the project team,
- cross-debriefing in the initial ergonomist/project team interactions,
- assurance of his contribution as early as the initial contacts with the requesters.

I present them below, referring to several implementation situations and to the benefit that I see in them for the person doing the intervention as well as his intervention.

#### Analysis of the project team's discourse

Situation ❶: *As early as the initial minutes in the presentation<sup>2</sup> of a development project for premises intended for train controllers and as a meeting point between customers and the SNCF agent on the train, one aspect caught my attention. The partners in the project did not*

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<sup>2</sup>. During my first telephone call to the project manager to agree on a date to meet.

seem to have given a name and therefore a clear function to this space. In fact, the person I was dealing with talked to me about the space to be developed by calling it "service space", "work space", "ASCT<sup>3</sup> space", "information point" or "rest area".

As for the management of the intervention, it seems to me that ergonomic work, regardless of its quality, will always be questionable if there is no consensus on the ultimate purpose of this space. Thus, beyond a rapid development intervention, this intervention also has to be thought of as a means of homogenizing the different viewpoints on this space within the project, and in so doing, of clarifying the role that the SNCF agents involved are expected to play.

The impacts of this intervention on the profession of controllers, on the social climate, as on the future real use of this space and its impact in economic terms (loss of seating accommodation) and image for the company (space intended for a purpose that is not achieved or without a clearly identified function) are significant.

Situation ②: During the initial meetings between the ergonomist and the design team for an R&D project to develop a sales and commercial information terminal demonstrator using a touchscreen and voice input as input interface [5], the content of the future examples of the use of the terminal to be designed surprised me. I found them very incomplete and very biased. In fact, only uses with voice interaction were presented to explain how the future sales or information dialogue should take place with the terminal, while mixed interactions (touch input and voice input) or only with the touchscreen can logically be considered.

Elsewhere [4], I have detailed the reasons for such apparent blindness by the project team (valorization of the project's R&D aspect, means of forming an alliance with well-known partners in the field of voice recognition, ease of presentation of these examples of use, institutional justifications, etc.). Whatever these reasons, the future use scenarios around which the presentations of this new terminal are articulated have alerted me to an essential difficulty in my future intervention: giving ourselves the conditions for carrying out quality ergonomic work beyond the project team's technological preferences. Dealing early with these anticipatable difficulties has prompted me to work on the social dynamics between project partners in order to obtain satisfactory working conditions<sup>4</sup>.

The two situations reported above have the characteristic of having been dealt with in the same process. In fact, I paid special attention to the terms used right from the project team's initial presentation of the project by considering them as revealing this team's perception of the future reality when the project will have taken shape. I believe that the benefit of this type of analysis in managing the intervention seems to lie in the possibility of anticipating the difficult points that will emerge during the intervention process, and even orient it along avenues to exceed these limits.

#### Analysis of the communication media used by the project team

Very early in an intervention, the ergonomist is often in the presence of communication media that allow the project team (generally consisting of people with very different professions and cultures) to provide, nonetheless, a presentation of the project based on consensus. The same process as the one used for the verbal discourse can also be initiated. In fact, I feel it is essential to take the necessary time and step backwards in analyzing the communication media that are presented to the person doing the intervention, since the means of

<sup>3</sup> ASCT: Agent du Service Commercial Train (controller)

<sup>4</sup> This strategy, which does not involve the initial interactions between the ergonomist and project team, is not more detailed. It can be found in [2].

representation used facilitate or hamper the consideration of some aspects of the future work situation. They show (to those who know how to find it) the idea of the future that is present in a latent way in the project team's work.

Situation ③: *Thus, in all studies on railway speed control, the plan generally used for talking about, representing, developing, and in short, working on the subject cannot refer by development to a few aspects that I was able to identify as essential in the many projects in which I participated in this field (consideration of a situated context, knowledge and model of the situation by the operator, intra-individual variability of the operator). Since this observation is established, I can, with full knowledge of the facts, choose to develop, disseminate and share the use of another work medium, or adapt the current communication medium so that the aspects of the future activity (which in my opinion must be integrated into the design process) are better taken into consideration [3]. Whatever choice I make, I am no longer fooled by the strong framework of the thought hidden in the communication medium generally used in this type of project.*

#### Cross-debriefing

Situation ④: *In a very technical intervention involving the implementation of an automatic speed control system integrating many levels and many transitions between more or less automated driving modes, I went by chance to the project presentation meeting with a colleague instead of intervening alone as is generally the case. This meeting brought us for the first time in contact with the engineers responsible for the project's technical and prescriptive aspects, since the request for the intervention was formulated by their supervisor who had already been informed about the process and result of another previous ergonomic study.*

*Very rapidly, the discussion<sup>5</sup> reached a high level of technicality, which made it rather obscure for us ergonomists. The alternatives that we had were either to attempt to clarify point-by-point the areas that were incomprehensible, or not to insist, and to accept that we would not understand everything during this meeting that was, however, meant for us. By common agreement, the second solution was chosen. In other words, we asked questions only when really necessary to understand the evolution in the discussion. At the end of the meeting, we had the documents that the project team had given us, our notes, and the promise of another meeting when we would be a little more familiar with the project.*

*Since the documents supplied also revealed the same technico-technical style that we had just been exposed to, only our notes remained available to us. These notes contained more or less the same two types of information: technical information relating to the project; "off" reflection that my colleague and I had had throughout the discussions. After a period of rereading, to enhance our notes on the two previously mentioned aspects, my colleague and I compared our viewpoints on the start of the intervention that we had just been through. Our dialogue soon took the form of a question/answer exchange or alternatively:*

- *one of us asked a question to clarify an aspect of the project, its impact on the operators, or the effect of the worker's known characteristics on the work situations being conceived within the project team,*
- *while the other attempted to defend the project viewpoint.*

*It was during this type of role-playing that our viewpoints developed. In fact, during a question or answer, we realized that:*

- *precise project-viewpoint details were missing, to be able to know what a member of the project team would have answered,*

<sup>5</sup>. Between ergonomists and the project team but mainly between engineers.

- *the project viewpoint was clear but revealed aspects contrary to our concerns,*
- *the arguments that would have been provided by the project team required refinement of our viewpoint.*

The cross-debriefing exercise reported above, by articulating our understanding of the project around our concerns and knowledge as ergonomists (references to other interventions) and not just around technical or regulatory questions, allowed the project team to be consulted again with, this time, one argument ahead in a field that was for us clearly less hostile and much better known. This process also had the advantage of maintaining a certain degree of credibility in the eyes of the engineers in the project team who generally conceive with difficulty the contribution of participants whose efforts are all that they see in achieving a level of technical mastery that will always remain unrelated to their own. However, this process requires accepting not having a clear picture of all aspects of the project. This means abandoning an expert position in order to take the more humble one of a partner working under the eye and validation of the other members of the project team.

#### Assurance of his contribution as early as the initial contacts

Finally, this process in which more value is given to listening than to questioning places the ergonomist in a position that is rather unsuitable for giving examples illustrating his potential contribution. In the case where the requester is not known, it might be useful to show the ergonomist's viewpoint in order to clarify what his intervention will involve.

Situation ⑤: *In hospital architecture, Elise Ledoux [Personal communication] uses knowledge acquired during her interventions. Thus, in questioning the architect about the existence of a specific exit for cadavers<sup>6</sup>, the ergonomist takes a position, regardless of the architect's response, at the level he demands: the activity and its impacts on tools, environments and men.*

Situation ⑥: *The internal structure of the SNCF distinguishes a national level of major activities and a multifunctional regional level that is more limited from a geographical standpoint. Intervention in many national projects therefore makes it possible to know whether a question on relations with the regional level<sup>7</sup> is always pertinent and focuses the ergonomist's preoccupations on the controllers' working conditions and the project's success.*

Situation ⑦: *In a more general way, Henri Fanchini [Personal communication] uses classical ergonomic knowledge about physical or software-related developments in the initial meetings with his clients ostensibly to point out that he has identified slight "dysfunctions"<sup>8</sup> that would be easy to correct. By doing this, the ergonomist conveys to the people he is dealing with that, whatever his behaviour and his attitude during the presentation of the project, he has practical and directly-useful knowledge that is accessible to the requesters only through the proposed intervention.*

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<sup>6</sup>. A specific exit for cadavers prevents patients walking near the hospital's common exit from coming close to the deceased almost daily.

<sup>7</sup>. Who are the relayers in the regions, what are their powers and roles, are they available to really fulfil their missions, what organization is implemented, what are the different avenues for informing the different regional components, how are they coordinated, how is information feedback organized, etc.?

<sup>8</sup>. Computer house-applications with interfaces open to criticism, debatable layouts, confusing signage, ...

Situation ③: *In an even more transverse way, I was able to note the benefit of always proposing a process very explicitly prior to providing an action plan, in order to give the ergonomist's partners exposure, to demonstrate professionalism and to clarify what falls within the scope of a prior search for information on the one hand, and the ergonomist's specific contribution on the other. As an internal person doing the intervention, this process sometimes conflicts with the reticence of the requesters and/or the ergonomist's partners.*

These latter tricks of the trade exceed the ergonomist's sole solitary analysis for dealing with the relationships to be maintained with his partners within the company in the very first stages of an intervention. They require that the ergonomist know how to adopt two practically opposite attitudes:

- a silent attitude: interrupting the project team's presentation as little as possible; noting his initial reactions, questions or attitudes without always sharing them with the project team; saving for later the opinion that will definitely be asked of him; accepting at the start to be involved by the project team in very technical issues; declining to clarify all technical aspects; focusing his listening less on the content of what is said (specific, technical aspects, ...) and more on the relationship (what is the overall meaning of what is said, what issues are hidden behind the discourse, what are the points where project team decisions remain to be made or are not sufficiently supported, ...);
- an offensive attitude: spontaneously demonstrating his knowledge, whether technical or methodological; referring to it without too much concern for the ambient context; posting technical details that are not known by the people he is dealing with (standards, dimensional or cognitive characteristics of the men); proposing simple solutions to the problems raised, etc. For all this, it should be noted that a prior accumulation of knowledge was necessary, whether it was universally by discipline, but just as often, over a more local area by the ergonomist or a group of ergonomists around generic work situations (train driving, hospital architecture, ...).

## Conclusion

For me, these two positions, like the two preoccupations presented above (on the project team's words in the discourse and communication media) are acquired from experience which, I believe, facilitate the process and management of an intervention. They form a whole, insofar as the discourse and communication-media analysis identifies consistencies in some intervention contexts, which can be useful knowledge for assuring his contribution right from the initial contacts.

Subject to validation of their pertinence and actual effectiveness, I believe that the ergonomic community would gain in professionalism by being inspired by the tricks of the trade developed by each ergonomist during and through his practice in order to enrich the means of transmission of ergonomic knowledge about the intervention process. The worst solution seems to me to leave the beginner ergonomist without a practical design tool for meeting the prescribed objective of understanding the project and for analyzing the request made to him in order to reformulate it and propose an intervention process. The danger is in seeing the person doing the intervention focus on the production of a specific question checklist where the benefit of the initial interactions of the ergonomist/project team for managing the intervention is not fully used.

## **INDIVIDUAL LEARNING STRATEGIES**

**by Audrey Lalumière**

The contexts and fields of ergonomic intervention vary greatly and as a result, it is impossible for an ergonomist to be specialized in all fields of activity. As well, ergonomic practice is continually evolving with the technical and organizational changes in work. The ergonomist is therefore constantly faced with the need to complete his/her knowledge, acquire new knowledge, or simply validate previously acquired knowledge.

Within the scope of this closing plenary session, I was asked to think about the learning strategies that I use in my professional practice. I quickly realized that it was not easy to describe them in a structured way. In fact, learning situations are part of our daily life and formalizing them requires some thought. However, this exercise allowed me to realize the extent and particularly the variety of the strategies by which I evolve and acquire new knowledge.

In this presentation, I will therefore attempt to categorize the different learning strategies that I use in my professional practice, in relation to personal and/or professional development needs. Examples of situations that generated the necessity for finding complementary information will illustrate the various strategies used. I will present my experience very simply in relation to these strategies by attempting to highlight the obstacles encountered, the facilitating factors, the feelings felt, and the attitudes to be developed in the different situations. Finally, I will end by stating some wishes about means that could be implemented to facilitate the sharing of knowledge within the ergonomic community.

### **The context of my professional practice**

I obtained my master's degree in ergonomics more than ten years ago. Previously I worked in vocational rehabilitation in the public sector and wanted to broaden my professional practice; I therefore founded my own ergonomics consulting company in 1993. Since then, I have been an external consultant in many companies across a large number of professional activity sectors (industrial, commercial, services, etc.).

All these years, I have worked alone in my company. It is therefore difficult for me, in daily life, to share experiences with other ergonomists. Also, since my company is located in Québec City where the number of ergonomists is limited, exchanges of the meeting, training or other type are rare. The result is that I have had to implement strategies to avoid professional isolation as much as possible, and as well, the limited possibilities of professional development. The difficulties expressed will therefore refer to this context of professional practice. However, I suspect that these difficulties are encountered by ergonomists working in many contexts other than private practice and that the learning strategies applied can be and are certainly also used by these ergonomists.

### **My learning strategies**

With concrete examples, I will share various learning strategies that I use in my professional practice. This need to broaden or complete my knowledge can manifest itself in different situations.

First, I will present interventions carried out in my usual fields of competency, but in which I wanted to pursue or update my knowledge. As well, I will present some situations where the

intervention made use of already mastered knowledge but where the context of the intervention was different. I then wanted to have my intervention process and results validated by someone whose competency in this sphere is recognized, from a perspective of completing my knowledge while ensuring that I can offer my client an intervention of the highest possible quality.

I will then talk about situations where I was offered new intervention contexts that greatly interested me but that required that I complete my learning. With these situations, I was able to meet new challenges and develop new fields of competency. The strategies implemented in this context must be particularly effective, still from the standpoint of offering quality services to my client. There are many difficulties related to this type of situation, the feeling of insecurity is significant, and the attitudes that should be adopted are particularly important in order to avoid failure and the associated loss of credibility.

For each of these situations, I will therefore present various learning strategies, mainly the networking developed apart from or during the intervention, the strategic collaboration with other ergonomists or other professionals, the use of various sources of literary references (books, journals, Internet), and continuous professional training.

I will comment by elaborating on the difficulties encountered at various levels, the effectiveness of the various strategies, but also on the pleasure related to the use of these different means. In fact, all of these learning strategies promote a feeling of personal and professional accomplishment, and several of these strategies allow me to establish enriching social and professional contacts.

## **Conclusion**

Using examples from my professional practice, I will have attempted to analyze the learning strategies that I use for the purpose of furthering my personal and professional development and thus broaden my fields of competency and intervention. The difficulties inherent in continuous professional training will have been highlighted and certain wishes will have been expressed about the tools that could be developed to facilitate exchanges and the broadening of ergonomists' competencies, regardless of their fields of practice. In my opinion, with better communication and the development of collaboration between ergonomists in different types of practices (researchers, university, professionals), each could benefit from it, thus promoting a collective enrichment of the profession.

## **COLLECTIVE LEARNING TOOLS: THE EXAMPLE OF OUR CONFERENCES** **by Irène Gaillard**

In the introduction, Fernande Lamonde stated the reasons why this plenary session is organized the way it is. In fact, since the last SELF conference where a round table was organized on "communication in ergonomic intervention", we have wanted to study in more detail the content of our discourse during the conference. In fact, where we expected reflective discussion on our intervention practices, we noted a communication and discussion content oriented only timidly in this direction. While the need for this type of exchange seemed obvious to us, as shown by the developments of Franck Bernard and Audrey Lalumière, this level of discussion seems difficult to achieve. In addition, as shown once again by the accounts presented here, it goes without saying that if the discourse of our interlocutors determines our choices of action, reciprocally, the understanding, and therefore the expectations of the people we are dealing with are structured by our own discourse on ergonomics.

To feed this reflection, I therefore considered the content of our exchanges using the Proceedings of the last SELF conference (Toulouse, 2000). I decided to investigate a specific conference by assuming that basically what occurred can be generalized to other events of this type and by using my own experience with this type of event.

More specifically, I was interested in the content of the papers presented as well as the structure of the sessions. To do this, I reread the Proceedings and analyzed them from five perspectives:

- the subjects covered by the paper (what the paper is interested in and what justifies it in relation to cultural references of ergonomics as well as to a reading of the current state of the discipline);
- explicit theoretical references, or more modestly, links to reference systems that can be discourse on topical subjects and material taken from related disciplines;
- the means used to address the question;
- the context of the intervention (a key term in this plenary session);
- the action strategies mentioned by the authors to describe their methods.

### **Findings on the content of the papers**

Overall, this reading demonstrated that such a conference covers two important aspects of the needs for learning underlined by Audrey Lalumière: specialized knowledge on the one hand, and practical applications on the other. In fact, most of the papers surveyed fall into one of the three following categories, depending on whether the paper deals with:

- the state of knowledge on a subject;
- general intervention models (drawn from experience or not);
- a field study.

It should be noted that a direct association cannot be made here between these themes and the professions of ergonomists: the first two are not exclusive to researchers, and the second, to ergonomists in professional practice.

#### A lot of ground covered, but very little about professional practice

As for the exposure given to professional practice, the analysis reveals that of the 58 papers considered, only 20 occasionally contain elements of reflection on how to carry out an ergonomic intervention (in a few lines), while 8 are actually focused on professional practice. These first numbers show that if knowledge about professional practice is disseminated within the context of our conferences, it is generally in the background, at the expense of true accessibility.

If we look more specifically at field studies, we rarely see papers focused on the “how” of the intervention. Contrary to what I expected, it appears that “professional practice” is not associated with the “field intervention”. In fact, it corresponds to another formalization of the way that was used to successfully carry out an intervention, including the contextual aspects that seemed significant to the person doing the intervention during the process.

If the papers discuss professional practice hardly at all, it is because other concerns predominate when the communicator structures his discourse on the intervention. Once again, if last year’s conference is considered, there seem to be many filters that limit the dissemination of his intervention know-how:

- the theme of the conferences focuses the discourse on a given aspect of the work activities (in the case of the conference that interests us here, it was communication),

which is not necessarily compatible with the activity considered from a systemic perspective;

- the speaker's experience. The more experienced the speaker, the less he reveals about his intervention strategies and the more he uses general models to talk about them;
- the issues of power and success of the person presenting the paper. The conference is not just a place for sharing, it is also a place where exposure is given to his work while being the messenger of personal, statutory, institutional and theoretical issues;
- the impact of scientific culture.

Regarding this last point, it should be stated that scientific culture limits the expression of the practice of the person doing the intervention (researcher or professional) in different ways.

For example, the professional:

- has trouble describing professional practice in the form of a general model due to what we appropriate from our intervention contexts which is difficult to include in our standards;
- chooses to report only the "activity analysis" aspect of his intervention without situating it in the overall context of the intervention, or on the contrary, presents his intervention as a history, a sequence of "what was done", arriving rapidly at the results (without discussing the methods);
- becomes involved in a process to demonstrate the problem raised by the field and the solution given (while in practice, it is more common to become involved in a study without knowing precisely the role that will be played, the contribution that can be made). From the moment a process is reconstructed in a scientific framework, these blurred zones can no longer be communicated.

#### Ergonomics, mainly ergonomics

Regarding the previously-mentioned intervention strategies, it should be noted that without being radically restrictive, the studied conference leaves little room for the dissemination of knowledge other than that focused on ergonomics.

As Audrey Lalumière has mentioned, ergonomic practice is helped not only through the direct apprenticeship of the intervention or from knowledge specific to the discipline. It is generally useful to know better the field of activity of the people we are dealing with; this would certainly make the initial minutes of the interventions easier, discussed in detail by Franck Bernard, during which we must invariably establish contact with designers, managers, etc., in different professions. For example, as soon as the ergonomists begin to invest in quality and ISO-certification projects, why not plan for a session bringing together invited specialist speakers in this field, a session during which exchanges would be possible? This would help us understand their processes and viewpoints on work organization.

#### **Structuring of communications**

The sessions are often structured in such a way that similar papers are grouped together. The criteria considered are basically:

- the field of application. For example, field studies carried out in a given sector (the hospital sector, continuous processes, hazardous industries, etc.) or articulated around a given issue (cognitive ergonomics, MSDs, etc.) are grouped together;
- the study subject. For example, interventions in the field of cognitive ergonomics are grouped together.

However, the resulting order is sometimes entirely relative, and a great variety of papers can be seen in a given session. In particular, the fact that a given theme is addressed does not mean that the communicators' concerns are convergent. Thus, by using our reading checklist, it appeared that this structuring of sessions had led to a wide diversity in the 8 papers focused on practice; this of course makes professional practice more difficult to demonstrate.

Thus, from a professional-practice valorization standpoint, it would certainly be interesting to group together papers defined according to intervention issues (the writing of an intervention proposal when rather unfamiliar with a field, the significant indicators at the time of the initial meetings with a project team, such as discussed by Franck Bernard, etc.).

### Conclusion-perspectives

If these few results are linked to the accounts of Franck Bernard and Audrey Lalumière, elements appear that may potentially explain some participants' "unfulfilled expectations". We should remember that, overall, they stressed that the variety of fields of intervention prompts them to:

- formalize practices that transcend the variability of contexts and that create links between apparently different fields. Franck Bernard spoke about "an increase in the proportion of sources of stability in the intervention process";
- create networks with other ergonomists potentially more experienced than themselves in a given field, but also networks of non-ergonomists;
- attempt to access concrete information on other ergonomists' practice, but also basic and even scientific and specialized information.

How does the content and structure of the conferences allow these questions to be answered?

I don't pretend to provide, with this rapid summary, ready-made solutions to all the limitations involving the conference, even collective means made available to ergonomists to support the discipline. In fact, one should not forget that a conference, like an intervention, is the result of complex practice, if it is considered from the viewpoint of those organizing it, those presenting papers, and those participating in it.

Independent of its content, the conference itself is certainly a learning opportunity since it provides each person with an opportunity to develop or maintain "his network". We sometimes hear our colleagues say that the content of the papers is not essential, and that the conference is mainly a social and/or commercial event for them. Of course this latter aspect is very important, but I believe that conferences are also a collective learning tool. In other words (and as Audrey Lalumière's account clearly revealed), they can be considered as a means that we collectively give ourselves to deal with the variability and constant evolution in our intervention contexts. However, we must ask ourselves how to ensure that, as illustrated by Franck Bernard, the learning of the profession that is achieved through a strong link to practice...can be further strengthened by our conferences. It seems clear to me that to reflect on this type of question, the needs and daily reality of all ergonomists must be taken into account, with all professions confounded.

In closing, I must make a connection here to my teaching practice. The accounts of Audrey Lalumière and Franck Bernard and my rapid analysis of a conference all converge towards the same observation: a trade-off between the distance between standardized intervention

processes and the variability in fields is at the heart of professional practice ... but also at the heart of our collective preoccupations.

For me, in six years of teaching, this is a recurring question for me. Of course, teachers can build on the established knowledge and standardized intervention processes. But we know very well that this knowledge can never replace professional experience. Also, let's try to pay more attention to practice, for example by linking teaching and training periods. Besides the solutions that can be developed, we are in fact constantly faced with three choices:

- either to remain attached to established knowledge, considering that it is preferable to pass on simple, clear, stabilized, "too straight" (in appearance) messages but finally leaving to the trainee the job of trading off, in a more or less controlled way, the difference between the reality of the field (characterized by a wide variety of intervention contexts) and the standardized tools and methods that we teach;
- or to set an objective of forming the viewpoint of the future ergonomist so that he is capable of understanding the viewpoint of the activity, considering that experience will effect a true integration of his viewpoint in a more global intervention practice;
- or to attempt to adapt and contextualize the content of our teaching at the risk of introducing more blurring and complexity into our message, and at the risk, it must also be said, of placing ourselves against the current of available training manuals, which reflect such complexity with great difficulty.

## **GENERAL CONCLUSION**

**by Fernande Lamonde**

The description of the theme of the conference revealed to what extent ergonomists are called on to intervene in contexts that are varied and constantly evolving. First, since workers are put in new working situations, and we are ourselves faced with developing or correcting nontraditional work situations (one only has to think here of telecommuting). The project's steps leading to the conception of work situations then change, which corresponds to a change in the context into which our interventions must fit.

If it is addressed from the viewpoint extrinsic to the ergonomist who intervenes, the issue of the variability of our intervention contexts seems to be without limits and unsolvable. First, a "finished" list can never be established of the contexts within which we must know how to intervene. The work situations that we will have to develop and correct will always evolve. The same will be true for the steps in the project into which our action will have to fit. Then, strictly speaking, no "standard terrain" exists in ergonomics. If we take the viewpoint of the person doing the intervention, a classical terrain with respect to the history of the discipline can pose new problems. Everything depends on which areas this person's experience will have progressively brought him to intervene; everything does not depend on the history of the discipline, but instead on the personal professional history of the person carrying out the intervention. However, producing standardized intervention processes accompanied by a warning "to be adapted to the context" and general considerations on these contexts is not enough.

During this plenary session, we were able to note that addressing the question of variability of contexts from an intrinsic point of view could be productive. This allows the creation of an "entre deux" that completes the standardized descriptions of our process on the one hand, and general considerations on the characteristics of our various intervention contexts on the other. In fact, the accounts of Franck Bernard, Audrey Lalumière and Irène Gaillard clearly show that addressing the variability of our intervention contexts from this angle:

- makes this variability appear less problematic by making it possible to note that ergonomists, individually and collectively, have already developed tools to deal with it;
- opens up a series of avenues to be explored to develop new means of equipping ourselves better.

These means are not addressed only to ergonomists in professional practice: they involve all ergonomic professions. In fact, they involve all our tools for formalizing and sharing our tricks of the trade, in particular:

- our conferences (their content like their structuring);
- our initial teachings and our continuous professional development activities;
- our scientific and professional publications;
- our associations and the services that they provide for us (for example, the benefit of supplying information on all web sites likely to interest ergonomists in order to avoid the multiplication of individual research efforts).

Our individual and collective discipline-related tools are not fundamentally challenged. Instead, they must be developed on the basis of a better reading and prior understanding of "what is real". This assumes equipping ourselves with the means for better understanding the ergonomists' real work, meaning knowledge and know-how which, in context, determine their professional, teaching and research practices.

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