

Paris, le 21 Novembre 1995

Melle le Professeur Clarissa Rubio  
Department of Sociology  
College of Social Sciences and Philosophy  
University of the Philippines  
Diliman Quezon City 1101  
Philippines

Chère Clarissa,

Vous m'avez envoyé, il y a déjà longtemps, un texte sur la question de l'appareillage dans les hôpitaux philippins.

J'y ai bien retrouvé votre excellente méthodologie, et j'ai été frappé de la qualité de votre description et de la précision des solutions envisagées.

Je m'aperçois que je ne vous ai pas fait parvenir, comme je vous l'avais promis, mes derniers textes écrits en anglais. Vous les recevrez, sous pli séparé, ainsi que le livre paru récemment qui reprend mes travaux.

Je vous écrirai bientôt à nouveau pour vous dire mon sentiment sur votre texte destiné au Travail Humain. Je n'ai pas encore eu le temps de le lire.

Bien amicalement.

A. Wisner

Paris, le 8 Décembre 1994

Mademoiselle le Professeur Clarissa Rubio  
Department of Sociology  
Colloge of social sciences and  
Philosophy  
University of the Philippines  
Diliman Quezon City 1101  
Philippines

Chère Clarissa,

J'ai été très heureux de vous revoir à Bangkok et Rayong et surtout de m'entretenir avec vous à plusieurs reprises.

J'ai en particulier noté que vous n'aviez pas reçu mes deux derniers textes : l'un sur la construction de problèmes, qui devrait paraître très prochainement dans Ergonomics dans un numéro comportant un hommage à Tom Singleton, l'autre devrait paraître en fin d'année 1995, toujours dans Ergonomics, parmi les rapports du Congrès de Toronto.

J'espère que nous aurons bientôt d'autres occasions de nous revoir, et peut-être de travailler ensemble.

Bon courage.

Bien amicalement.

A. Wisner

P.S. Je vous adresse également trois textes parus dans les deux derniers volumes de l'ODAM.

*Les remarques, est-ce un exemple  
d'un point de vue artistique de l'organisation  
celles qui du mécanisme bureaucratique  
de centralisation de la décision à l'effet  
peu et des effets directs, car l'air  
d'un point de vue des relations pour l'air  
dans les laboratoires, peut-être*

THE MANAGEMENT OF MEDICAL TECHNOLOGY IN HOSPITAL  
LABORATORIES

Clarissa A. Rubio, PhD.

à la

1.0. Introduction

This paper is primarily concerned with suggesting possible legislation on the management of medical technology used in hospitals and other laboratories in the Philippines. Medical laboratories are the backbone of any hospital because they support the delivery of health care services provided by the latter. Considering the limited resources in the country, the development of good support structures for these laboratories would ensure better delivery of health services. This can be done through better management of the existing medical equipment in the laboratories.

The first section (2.0.) describes the nature and sources of data. The second (3.0.) explains technology management and its importance. In the third section (4.0), medical technology in hospitals, their types, sources, uses and requirements are described. The state of medical technology in laboratories are presented briefly and concrete examples of problems are cited in the fourth section (5.0.). Finally, suggestions (6.0.) are given concerning possible legislation and ways of improving the conditions and management of these laboratories.

## 2.0. Methodology

Visits of twelve laboratories were undertaken for this purpose. The study focused mainly on medical equipment found in hospital and other laboratories. Observed were different laboratory conditions in private, government and specialty government hospitals. Interviews of key informants namely doctors and medical technologists were also conducted. Time constraints limited the data collected. However, as much as possible, different types of laboratories were visited to get a broad perspective of the problem.

## 3.0. Technology management explained

Practically all medical technology (hereafter used interchangeably with medical equipment) in laboratories are imported from industrialized countries like the United States, Japan and Germany. This study focuses on the management of technologies transferred from these countries.

Technology management is defined as the use and operation of the medical equipment in the medical laboratory. Included here is the social, technical, and organizational context within which technology is used and operated. The use of manpower and provision of technology requirements for efficient and effective operation are also planned and undertaken in this framework. Another important

element of technology management is the way the continuity of technology use is ensured through the provision of its needed supplies, materials, maintenance and repair.

### 3.1. The importance of technology management

The identification of possible legislation and measures to ensure better management of medical technology in laboratories is important for an industrializing country like the Philippines. Since, resources are limited there is a need to prolong the life span of old technology.

There is also an influx of state-of-the-art medical equipment which the country must be prepared to receive. Advanced medical technologies have very sensitive electronic components which need a cool, dust-free environment. These are also costly and expensive to maintain. Especially trained personnel are required to operate them. To optimize their use, it is important to ensure that these new medical equipment function well.

### 4.0. Medical technology in hospital laboratories

Medical equipment in hospital laboratories may be characterized by their: use (4.1), type (4.2), sources (4.3) and their requirements (4.4). These characteristics are important in understanding their present state in hospital laboratories in the country.

#### 4.1. Uses of medical technologies

There are basically three forms of medical technologies used in hospitals namely those (a.) in laboratories for testing patient specimen, (b.) for patient diagnosis like x-rays and CT scanners, and (c.) for patient surveillance like in ICUs. This paper mainly focuses on the first group, equipment in medical laboratories which are used for testing patient specimens. However, suggestions concerning legislation may also apply to all three groups.

#### 4.2. Types of medical equipment

Mainly two types of medical technology are found in hospitals namely those with either electro-mechanical or electronic components. Modern equipment are of the electronic type with integrated circuits. Some are computer assisted in their operations.

#### 4.3. Sources of medical equipment

Medical equipment in hospital laboratories mainly come from the following sources: (a.) out-right purchase, (b.) lease purchase, (c.) lease, (d.) re-agent tie-ups, and (e.) donations or grants-in-aid. Private hospitals usually acquired their equipment through lease purchase and re-agent tie-ups, while government hospitals secured theirs through

purchase, from foreign donors as grants-in-aid or from local benefactors.

#### 4.4. Technical requirements of medical equipment

To function well, any type of medical technology has several requirements which include the following: adequate physical space (4.4.1.), a continuous supply of electrical power and water (4.4.2.), materials and supplies (4.4.3.), maintenance and repair (4.4.4.), and trained manpower (4.4.5).

##### 4.4.1. Physical space

Depending on their size, different types of medical equipment occupy a large or small physical space in the medical laboratory. Some are just put on table tops, while others require a large floor space. Some also require a cool, well ventilated environment but others are not sensitive to changes in temperature and humidity. Electronic medical equipment are usually sensitive to dust and heat. These need to be housed in air conditioned rooms.

##### 4.4.2. Electrical power and water supply

To remain in good working condition, these electronic equipment also require a stable power supply. Some

equipment also need a continuous water supply.

#### 4.4.3. Supplies and materials

Certain medical equipment require some materials like re-agents for conducting tests. In case, of machine break down, spare parts are needed for repair. Some parts are available locally while others are imported from other countries.

#### 4.4.4. Maintenance and repair

Proper maintenance and repair are necessary for all medical equipment, old or new. For these, trained technicians are needed who can be called upon to do the repairs. Preventive maintenance prolongs the life span of machines. Laboratory performance largely depends on well maintained medical equipment.

#### 4.4.5. Trained medical technologists

Qualified medical technologists with the proper training, especially to operate the advanced electronic equipment, are very important. They perform the clinical and anatomical tests necessary on patient specimens, prepare and interpret the results based on the indications provided by the equipment readings.



The next section describes the present condition of medical equipment in laboratories in the country.

#### 5.0. The state of medical technology used in hospital laboratories

The present state of medical equipment observed in laboratories can be described in basically four ways. These are: the physical conditions of the laboratory (5.1.), the technical condition of the medical equipment itself (5.2.), manpower characteristics (5.3.), and the social, organizational, and technical conditions (5.4.) under which these are being used. This study concentrates on the last three. Concrete examples of problems for each are cited.

Poor laboratory conditions are not conducive to the efficient delivery of health services. Unsafe working conditions also pose hazards to the health of medical technologists in the laboratories, other people working there and those in the surrounding environment.

The condition of the medical equipment has a consequence on the performance of the laboratory personnel. Effective delivery of health services depends on the availability of qualified medical technologists and properly functioning medical equipment. In cases where the medical equipment is not functioning well, out of order, or not available, the delivery of health services through the

conduct of laboratory tests needed by patients, would be inadequate.

The social, technical and organizational context, wherein medical technologists operate the equipment, are also important factors which affect the efficiency and effectivity of the hospital laboratories.

## 5.1. Manpower

### 5.1.1. Problem: brain drain, rapid turnover, lack of qualified medical technologists

Budgetary constraints kept government hospitals from hiring very much needed medical technologists. As a consequence, their staff is over worked.

Some laboratories are experiencing manpower problems because of rapid labor turnover. In one private hospital, the medical technologists stayed only an average of two years. This was the length of time they needed to enable them to qualify for employment in countries like the United States and Canada.

### 5.1.2. Problem: low morale and low wages

In some government hospital laboratories, low morale was noticed during the interviews. Among the reasons were: low salary, slow rate of promotion, long work hours and

inadequate equipment. Some were also complaining about the ill effects on their working efficiency and productivity of equipment breakdown, delays in repair, and lack of spare parts.

#### 5.1.3. Problem: Re-entry support for returning foreign trained medical technologists

Medical technologists who had undergone foreign training were given re-entry support in the form of equipment and materials for their local projects. However, Delays in the arrival of the equipment and materials they need hamper their work.

In the case of one re-entry project for example, the kit for the thyroid stimulating hormone test is not available locally and has to be bought in the United States. A foreign donor funds the study for two years by giving maintenance and re-agent support. However, with the termination of the two year grant, the supply of re-agents will become a problem.

### 5.2. The technical state of medical equipment

#### 5.2.1. Problem: no preventive maintenance

Preventive maintenance involves regularly checking the machine to ensure that it is in good working order. This is intended to prolong the life span of the equipment because

worn out parts are located and replaced before the break down occurs. However, preventive maintenance did not appear to be a concern of the laboratories. Repairmen were called upon only when the equipment broke down.

#### 5.2.2. Problem: non-functioning/ out of order equipment

Laboratories in government hospitals as contrasted to private ones were observed to have more old and out dated equipment. Some were not functioning because they were not repairable anymore.

There were also equipment which was out of order. Among the reasons given were: no spare parts were available; parts were missing; the equipment was not repairable; no repairman had the competence to repair it; it lacked materials e.g. re-agents; or it was far from Manila and no repairman had come.

##### 5.2.2.1. Lack of spare parts, missing parts

In some laboratories, spare parts for certain machines were no longer available. There were also cases of new equipment which could not be repaired because spare parts were not available locally. There were also cases of new equipment which had missing accessories or parts. In one case, a sterilizing oven with water bath had never been used

because of missing parts.

In another, a digital spectrometer was purchased by a laboratory but the dealer did not include an important accessory, a universal holder. Representations were made to request for the missing accessory. The dealer finally sent a square holder which was not what was specified. The equipment cannot be used because no square holder is locally available and importing only a small quantity is very expensive.

In this instance, it was not possible to ascertain whether the problem lay with the office charged with purchasing the equipment and receiving it, or with the dealer. What is important to note here, is the amount of money spent for equipment which cannot be used.

#### 5.2.2.2. Distance from Manila, no repairmen available

Government laboratories experienced delays in the repair of their equipment because of the distance from Manila. Repeated calls do not get any immediate response. However, private laboratories did not seem to have the same problem probably because they provided the repairmen coming from Manila free transportation, accommodation and food.

#### 5.2.2.3. Lack of competent repairmen

One doctor said there were very few firms providing reliable services in the repair of medical equipment. There are also very few repairmen competent in repairing new electronic medical technology. One private laboratory had the sad experience of a repairman who destroyed the Nikon prism microscope when he cleaned it of fungus.

#### 5.2.2.4. Incomplete manuals and guides

Manuals and guides are very important for users of the medical technology. These serve to explain the proper use of the equipment. However, there were cases of incomplete information in manuals provided by the dealer. For example, an automatic absorption spectrometer was provided with a "cookbook" type manual saying, "dry in the oven for 8 hours for two weeks". However, the temperature was not specified. The medical technologists had to do their own research and determine the right temperature by trial and error. To avoid problems like this, they have resorted to contacting current users of equipment which they intend to purchase. They get information about its advantages and disadvantages.

#### 5.2.2.5. Maintenance books and circuits diagrams are not filed

One doctor observed the problem about laboratories not

#### 5.2.2.5. Maintenance books and circuits diagrams are not filed

One doctor observed the problem about laboratories not filing maintenance books and circuit diagrams. When the equipment breaks down, these guides are not available to the repairmen hampering the latter's work.

### 5.3. The social, technical and organizational conditions of medical technology

To better deliver the services provided by medical laboratories, the social, technical and organizational context has to be considered. The preceding sections described the technical requirements, the state and the problems of managing medical equipment. This dimension of management dealt mainly with the technology itself.

This section centers on another dimension of technology management. To ensure the improvement of the laboratory by ensuring its continuity and improving its operations can be done by anticipating needs and planning. This involves the acquisition of equipment and provision of all the necessary supplies and material support needed.

An important concern of technology management by laboratories, is the acquisition of newer and better equipment to improve health delivery. Another is to ensure

that supplies and materials are available when needed. Several problems have been identified concerning these, namely: the bidding process (5.3.1.); importation, high cost and mark up by dealers and customs processing (5.3.2.); customs handling (5.3.3.); and non-availability of local materials and supplies (5.3.4.).

#### 5.3.1. Disadvantageous consequences of bidding process

The bidding process is required for government hospital laboratories needing to acquire new equipment. The purpose of this process is to ensure cheaper equipment is purchased. However, for medical technology, one medical technologist said "cheaper is not always better". The experience of laboratories is that medical equipment which are more expensive tend to have a longer life span.

With the long procedure to procure equipment in government and the rapid changes in technology, sometimes newer and cheaper ones have become available but one cannot get out of the earlier specifications.

Moreover, among the observations of the technology users are: " the specifications of the bidders is sometimes good only on paper". In some cases, " dealers are concerned only with the equipment they are selling but not the supplies and materials required. Some dealers do not sell the supplies and materials required by the equipment.



Determining whether these are continually available is the concern of the purchaser".

#### 5.3.2. Importation, high taxes, mark up by dealers and customs processing

Importation of medical equipment is very expensive due to high taxes and the high mark up by dealers. Some doctors interviewed speculated that the mark up by dealers included customs processing "costs". The long processing time by customs was also cited as a factor in shortening the shelf life of the re-agents.

#### 5.3.3. Customs handling

Observations were also made about customs handling of re-agents. Storage facilities for sensitive material were not adequate. For example, poor refrigeration caused spoilage of these. A question was raised about the possible lack of knowledge of the customs about handling this material. Delays in release of the re-agents shorten their life span by the time they reach the laboratories.

#### 5.3.4. Non-availability of materials locally

Almost all materials used in medicine are imported like re-agents, slides and cover slips. Materials like these

increase the operating costs of medical laboratories. Some laboratories recycle some materials. For example, laboratories have been observed to re-use the pipettes more than the usual two to three uses. They sterilized and use these two more times before finally discarding them.

Another problem was the lack of supplies and materials to operate the equipment. Re-agents, like serum ferritin for testing iron deficiency and the kit for the thyroid stimulating hormone test, are examples of these.

Dealers only imported re-agents when clients make out an order. Delays in the arrival of importations caused the medical equipment to lie idle for long periods of time affecting laboratory efficiency.

#### 6.0. Suggested legislation

This final section presents two sets of recommendations: suggested (a.) areas for possible legislation and (b.) improvements of laboratory technology management. The main intention is to ultimately improve the delivery of health care services. The recommendations presented here are based on data presented in the preceding sections.

### 6.1. Increase the health budget

Primary to the improvement of the management of medical laboratory management especially for government hospitals is the increase in the health budget.

#### 6.1.1. For technology maintenance and technician training

Considering the limited resources of the country, maintenance of the existing technology should be of utmost concern. It is also important to keep pace with the advancement of medical science and prepare for the new medical technologies.

It is therefore suggested that allocations be included for the (a.) maintenance and repair of medical equipment; and (b.) training of technicians to repair new medical technology.

#### 6.1.2. Manpower

To prevent brain drain of medical personnel, the problem of manpower should be addressed. Increasing the salaries of medical personnel would provide them with incentives to stay in the country. Allocating funds for the hiring of additional personnel in medical laboratories will also help improve the efficiency of health care delivery .

### 6.1.3. Medical research for self-reliance and medical technology development

Another important area of concern is medical research. It is suggested that a fund for research and development be provided for in the budget. In particular, emphasis should be given on research to develop: (a.) self reliance and less dependence on foreign supplies and materials like re-agents (b.) appropriate medical technology and (c.) ways of improving the present state of medical equipment through

better maintenance and repair. The Filipino scientists have the capability for these three suggested activities.

### 6.2. Increase the capability of regional laboratories

It is suggested that the capability of medical laboratories in each region be developed. At least one medical laboratory should be established in regions where there are none. In regions where there is a laboratory already, its capability should be strengthened.

#### 6.2.1. Strengthen and/or develop one laboratory for each region

The ideal target would be to develop or strengthen at least one medical laboratory per region to service the needs of the people in the nearby provinces. Instead of

going to Manila, their medical needs would be serviced by the laboratory in the region. Especially if the patient is seriously ill, he and his family save time and effort and expenses.

A provincial hospital with a medical laboratory can be made a center for the region. These should be provided with trained medical technologists who will be given the incentive to stay. These laboratories should also be given support in terms of medical equipment, supplies, and materials so that the necessary tests can be conducted without the patient having to go to Manila.

### 6.3. Provide incentives for local investors, inventors and researchers to develop materials used by laboratories

Since almost all medical supplies and materials are imported from other countries, laboratory costs for various tests are high. Local investors should be given incentives to finance the local production of some equipment and materials which can be made in the country.

Incentives for local inventors to develop appropriate technology are also needed. Local inventors should be given the financial and other incentives to do this. Examples of these materials are slides and cover slips for slides. The feasibility of manufacturing lower level technology which

can perform simple functions can be made locally should be studied. One local laboratory uses a centrifuge made by the owner. Though not necessarily of international and export standard, centrifuges, ovens and sterilizers can be made locally.

#### 6.4. Regulate dealers of medical equipment, supplies and materials

Legislation to regulate the conduct of dealers who advertise, market and sell medical equipment, supplies and materials should be formulated. Stringent requirements concerning their compliance with the contract, especially the technical specifications about equipment, accessories and materials need to be set down. Penalties should be specified for non-compliance with the contract.

A government agency like the Department of Health should be given the authority to enforce the law and the police power to impose penalties and sanctions for violators.

#### 7.0. Non-legislative suggestions

The section deals with suggestions which may not require legislation but which nevertheless need attention. In place of legislation, mechanisms for improving the

delivery of health care through better support structures for technology management of laboratories are suggested. These recommendations are intended to improve the support to health care delivery provided by laboratories.

#### 7.1. Importation of medical equipments and re-agents

Very critical medical equipment and urgently required re-agent for primary, secondary and tertiary health care delivery should be identified. These should then be prioritized and the most important ones determined. Possible reductions in taxes will enable more laboratories to acquire these equipment. And the facilitation of the release of highly perishable medical supplies by customs will lessen wastage due to spoilage. Both of these will ensure a better delivery of health care services.

#### 7.2. Research on medical laboratories

Research is needed, on medical laboratories in hospitals especially those concerning non-medical activities which will help improve their operations. It is important to study how medical equipment can be optimally utilized by these laboratories. Studies concerning the use of medical technology, the management of these both technically and

organizationally will give insights on how these can be improved.

### 7.3. The bidding and purchasing process in government hospitals

Bidding in the acquisition of equipment, supplies and materials is a government requirement. However, in some cases, this has led to greater expense because of bureaucratic delays. For example, a newer, cheaper product may be released in the market but it cannot be purchased because of an earlier request in process already. In other instances, the concerned unit fails to ensure that all the requirements and specifications are complied with by the dealer. as a consequence, the equipment lies idle due to lack of parts or the non-availability of supplies and materials locally.



Paris, le 4 Juillet 1996

Professor Clarissa Rubio  
Department of Sociology  
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University of the Philippines  
Diliman Quezon City 1101  
Philippines

Chère Clarissa,

Je vous remercie de la deuxième version de votre texte qui me paraît effectivement mieux répondre aux intentions de Messieurs de Montmollin et Laville.

Ce texte me convient également quoique j'avais aussi bien aimé la première version. J'espère que la direction du Travail Humain n'aura pas d'autres exigences puisque vous avez bien répondu à ses demandes.

Ne soyez pas inquiète pour les délais : mon propre texte vient seulement d'être adressé aux "referee"; je vous en envoie d'ailleurs un exemplaire.

Comme vous vous en souvenez peut-être, je suis maintenant à 3 mois de ma retraite véritable et j'attends cette date sans regret. Je n'ai plus la force de répondre aux multiples attentes qui continuent à se faire jour. Il faut dire que j'aurai 73 ans le 2 Novembre prochain.

Je mesure pleinement combien vous êtes limitée dans vos ressources bibliographiques. Cela est une difficulté permanente de tous les chercheurs chez qui un niveau culturel dépasse largement les ressources financières ...

Par ailleurs, de façon générale, la situation en Europe est actuellement difficile car, comme vous le savez, cette partie du Monde passe actuellement par une période de réorganisation à la suite de l'effondrement de l'URSS. Telle n'est pas la situation aux Etats-Unis et dans les pays d'Asie du Sud-Est. J'espère, par exemple, que vous pourrez être aidée soit par les japonais, soit par les taïwanais.

Je pense que cela serait également une idée intéressante de vous adresser aux Autorités allemandes, quoique la situation économique en Allemagne soit devenue plus difficile que la nôtre.

J'ai été très heureux de travailler avec vous à plusieurs reprises et de visiter votre pays que j'aime beaucoup. Il est possible que je fasse un dernier voyage en Asie en Novembre prochain sur l'invitation de Kitti Intaranont qui m'invite à un petit Colloque d'Ergonomie à Bangkok le 15 Novembre prochain, et à Sen qui m'a invité à donner une conférence introductive au Congrès de la Société indienne d'Ergonomie à New Delhi du 20 au 27 Novembre, mais je crains que mes forces et mes moyens financiers ne me contraignent à renoncer à l'extension aux Philippines que j'avais espérée. J'ai eu du mal à achever un voyage, il est vrai assez compliqué, que j'ai fait au Brésil en Mai dernier.

Je vous adresse toutes mes amitiés et vous prie d'agréer, chère Clarissa, les amitiés de ma femme, de moi-même et de tous les membres du laboratoire.

A. Wisner

6 June 1996

min de la f. n. 24 June

Dear Professor

CHARISSA RUBEN

FAX - (63) 2 924 4946

I am enc.  
I hope this wi  
Dr. Hoc's e-ma  
receipt of the  
reply to my e-  
him.

Based on  
major revisior  
Confidentially  
information. T  
the paper rema

Contrary to your suggestion, I did not indicate that my paper was a theoretical and methodological contribution. The referees would have expected bibliographic material which I could not provide. Instead, I considered it an empirical or case study of technology transfer.

Time and space constraints have limited what I would have wanted to do. When I was writing my paper, I felt how out of touch I was with recent literature on anthropotechnology and ergonomics. I do not have copies of the recent dissertations on anthropotechnology. Poly never sent me a copy of his work.

I am realizing a few things about my work the past years. I have to continually seek opportunities for exposure to other situations of technology transfer in other developing countries to progress in my reflections on the industrial/social tissue and other aspects of anthropotechnology and ergonomics.

I need to acquire some exposure and experience not only to industrially developing countries but also industrialized ones. How can I continue to expand my ideas on the social and industrial fabric when I only know my own country and France a little? For example, how can I convinced others in Asia when all I can cite and discuss well are Philippine data? I have no comparative data to strengthen my arguments beyond the Philippine experience. Perhaps you could give me some suggestions as to what I can do about my situation?

Whenever funds permit, I try to participate in conferences for a few days like Bangkok. In November this year, I will try to ask assistance from U.P. to help me participate at the 4th Panpacific Ergonomics Conference in Taipei to meet ergonomists and learn about their work in that part of the world. Would you be there by any chance?

6 June 1996

*Unit d 2 parts 24 June*

Dear Professor Wisner,

I am enclosing a copy of my paper for the journal Travail Humain. I hope this will still make it for publication. I am sending a copy to Dr. Hoc's e-mail address at the Universite Valenciennes. I acknowledged receipt of the notice he sent me to revise my paper but I received no reply to my e-mail letter to him. So I am also sending a copy by fax to him.

Based on the comments of M. Laville and M.de Montmollin, I made major revisions to follow the requirements of a scientific journal. Confidentially, I am enclosing copies of their suggestions for your information. This will show you how and why my paper was revised. I hope the paper remains satisfactory to you.

Contrary to your suggestion, I did not indicate that my paper was a theoretical and methodological contribution. The referees would have expected bibliographic material which I could not provide. Instead, I considered it an empirical or case study of technology transfer.

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A German who used to work with DAAD, an organization of their country, suggested that I try to apply and request to go to Germany on a study visit to meet and discuss with ergonomists there. He said that I have to give names of people who would be willing to receive me. Would you be able to suggest particular people I could write to?

Perhaps I should write to Dr. Kogi and ask to visit him for few weeks at his institute in Japan? Do you think I would be able to get some support from them?

In anticipation of the possibility of having my dissertation or an expanded/revised version published as a book, I would appreciate it very much if you would do me the honor of writing me a foreword?

I remember you warned me about the difficulties of doing pioneering work. My continuous attempts to link up with our Occupational Health and Safety Center has not been successful. I suppose their work is very much influenced by the Japanese approach.

Thank you for your continued support and understanding of the difficulties in working a developing country. Your confidence in my work inspires me to continue despite my problems about limited resources here.

I have had to pace my work due to some health problems but I feel better now.

My warmest regards for you and your family. I hope everyone is well.

We now have e-mail and a fax machine at UP. I can now receive letters by

e-mail: [crubio@cssp.upd.edu.ph](mailto:crubio@cssp.upd.edu.ph)

fax: (63-2)924-4946  
Dept. of Sociology, CSSP,  
U.P. Diliman, Q.C.

Sincerely,

*Clarissa*

Clarissa

PS

I hope Dr Hoc received a copy of my proposed article which I sent by fax + e-mail to him last June 6. However, I have not received any reply or acknowledgment yet.

## EXPERTISE POUR LE TRAVAIL HUMAIN

Réf.: ATP02

Auteur: Rubio, C.

Titre:

An anthropotechnological approach: the social and the industrial fabric and transferred technology

Commentaires de l'expert:

L'intérêt du domaine traité (les transferts de technologie) est évident. Des concepts intéressants et pertinents sont proposés, notamment l'articulation 'social fabric/industrial fabric', ainsi que l'articulation 'technical competence/innovative competence'. Cependant le texte proposé ne peut être publié, car l'auteur n'a pas su choisir entre deux options, qui ne pouvaient pas être traitées toutes deux de manière satisfaisante dans le cadre d'un seul article de revue.

- la première option aurait été de traiter, au moins en partie, le cadre théorique des transferts de technologies. Mais il aurait fallu alors ne pas se contenter d'affirmations très générales, rédigées en outre de manière très répétitive. Il aurait fallu, notamment, procéder à une revue de question, au moins sommaire, de ces importants problèmes, qui ont donné lieu à de nombreux travaux. Les références sont caractéristiques de cette absence (apparente?) de culture, aussi bien en sociologie qu'en ergonomie, et même en anthropotechnologie (la seule référence qui ne renvoie pas à une publication de l'auteur elle-même cite une publication du Professeur Wisner qui n'est ni la seule, ni même la plus importante de ce spécialiste).

- La deuxième option aurait été de proposer une étude de cas, celui des téléphones aux Philippines. Mais alors il aurait fallu des données, un peu détaillées, concernant les méthodes utilisées (observations?, entretiens?, archives? ...), les problèmes techniques et organisationnels rencontrés, l'historique des événements, les acteurs institutionnels et professionnels, et - surtout - les difficultés rencontrées. Il est impossible de publier dans une revue scientifique un texte qui ressemble à de la propagande: tout semble avoir été parfaitement réussi, sans efforts ni conflits... Mais, contrairement au dernier mot de l'article, rien n'a été "démonstré".

*Remarque personnelle finale : ayant connu l'auteur, je suis persuadé qu'il s'agit ici de maladresses, dues à son manque d'expérience dans la rédaction et non d'un manque de sérieux dans ses études. Il ne faut donc pas qu'elle se décourage!*

Maurice de Montmollin

## EXPERTISE POUR LE TRAVAIL HUMAIN

Réf : ATP02

Auteur : Rubio, C..

Titre : An anthropotechnological approach : the social and the industrial fabric and transferred technology.

Commentaire de l'expert :

L' article proposé par C. Rubio, d'une part entre dans le cadre du numéro spécial sur l'anthropotechnologie, d'autre part introduit deux notions dans ce domaine (l'ensemble « social fabric » et « industrial fabric » et l'ensemble « technical competence » et « innovative competence ») comme le note l'autre référent. L'originalité et la pertinence de ces deux notions sont tout à fait nettes, surtout la deuxième ; c'est dire l'intérêt d'un tel article.

Par contre, la manière dont elles sont traitées pose quelques problèmes, que soulève aussi l'autre référent :

- il s'agit plus de généralités que de descriptions et d'argumentation solides ; et les exemples sont trop flous pour être convaincants et illustratifs,
- les limites conceptuelles et opérationnelles de ces notions ne sont pas discutées,
- enfin, les références à la littérature sont trop pauvres pour les situer dans un cadre théorique.

Deux solutions sont possibles pour améliorer cet article :

- soit celle de l'autre référent en l'orientant sur une des deux options qu'il propose,
- soit celle qui consiste à articuler ces deux options en resserrant le texte actuel (suppression des redondances, diminution des généralités) et en l'enrichissant d'exemples développés et discutés, et d'une partie théorique en référence à une littérature plus large que celle de l'auteur.

Cette dernière solution est en fait un compromis entre les deux options de la première solution.

Je connais C. Rubio, je sais ses difficultés à écrire ; mais le thème de son article est original et très complémentaire de ceux des autres articles proposés. Aussi, il serait dommage qu'il ne soit pas traité dans ce numéro. Il faudrait donc insister et l'encourager à reprendre sa rédaction.

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**Ref. no. ATPO2**

**Author: Clarissa A. Rubio**

**Proposed section heading: Empirical study (case study)**

**Full title: An anthropotechnological approach : the social and industrial fabric and transferred technology**

**Running title: Social and industrial fabric**

**Summary:**

Anthropotechnological studies of work contribute to a deeper understanding of how industrially developing countries can achieve better productivity. A few examples from the case study of the Philippine telephone firm were used as illustration in this paper. The social and industrial fabric served as the framework within which technological mastery, expressed in a. firm capability and b. operator competence enabled the firm to achieve better maintenance and repair of foreign made technologies.

Firm capability was shown by the support management gave the operators' in their repair and maintenance work. This enabled operators to develop skills and devise solutions to difficulties at work. With the encouragement of the firm, the operators developed innovations in repair which lessened dependence on the foreign vendor. Their competence was manifested in the fabrication of test devices for both the electro-mechanical and electronic

switching systems, and their solutions like re-cycling and remedies for parts which were no longer available.

**Key words:** Social fabric, industrial fabric, technological mastery, firm capability, operator competence



Empirical study

**AN ANTHROPOTECHNOLOGICAL APPROACH: THE SOCIAL AND THE INDUSTRIAL FABRIC AND TRANSFERRED TECHNOLOGY**

by Clarissa Rubio\*

I. INTRODUCTION

This paper attempts to illustrate the contribution of the concepts, social and industrial fabric in anthropotechnological studies of transferred technologies. Recognizing that industrialisation depends a great deal on technological capability, industrially developing countries (IDCs) purchase modern technological devices from industrialised countries (DCs) to attain higher production levels. The importance given to technology transfer and development is reflected in the economic development plans of countries like China, Bangladesh, the Philippines, Malaysia, Sri Lanka, Thailand, Indonesia, and Nepal. (1995)

However, productions in IDCs take place under different social, cultural, geographic and economic conditions from DCs. In some cases, imported technological devices operated at lower levels of efficiency and frequently breakdown resulting in low production capacity

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and poor quality products.(Meckassoua 1986, 1987, Kerbal 1989, AW 1989, Sagar 1989, Bagadion 1990, Rubio 1993)

In his study Meckassoua (1987) noted that the adhesive labels, used in automated bottle labeling in France, was unsuitable in Central Africa due to differences in temperature and viscosity of fluids. As a consequence, labels needed to be re-done resulting in reduced productivity and the premature wearing down of certain parts of the system.

In a phosphate processing company in Senegal, Aw found that the performance of an automated port gantry crane was greatly reduced due to maintenance problems, insufficient power supply and voltage fluctuations. In the Philippines, the break down of foreign made equipment provincial hospital laboratories resulted in delays in conducting certain laboratory tests. For example, when the imported autoclave and spectrophotometer broke down in a hospital in Baguio City, spare parts and the technician had to come more than 260 kms. from Manila. (Rubio, 1993)

Two problems were identified by Bagadion in the failure of a Philippine pulp mill to produce its desired production capacity. The frequent breakdown of the pulping machines was due to unsuitable hardwood resulted in the reduction of actual operating time. The failure of its river driving operations during the dry summer months could not ensure the continuous supply of wood.

Sagar showed that the poor installation of an industrial computer, which was used to control the machines and quality of the paper operated in a downgraded mode. This led to satisfactory but poor quality production in a Tunisian paper mill. Kerbal also found that the downgraded technological system of a paper mill in Algeria resulted in low production.

Commercial quality paper ~~which~~ was often produced in exchange for greater volume of poorer quality paper.

To a large extent the successes of IDCs with transferred devices depend on their ability to consider existing limitations and constraints on technology utilization that have been cited in these studies. If they are able to devise ways to minimize the detrimental consequences of these problems on machine performance, production will increase. Based on the findings of several studies on technology transfer, Wisner (1985) observed that technology transfer can succeed only if buyers are ~~un~~able to adapt the devices to function under local conditions.

Therefore, to understand the industrialisation of a country, it is important to study its successes and failures in utilising technological devices imported from industrialized countries. Anthropotechnological studies that consider the organization of the company and the work done by the operator (Wisner, 1992) provides useful insights to this understanding.

First, a distinction will be made briefly between anthropotechnology and ergonomics in the study of work activities. Second, the concepts, social and industrial fabric are defined and explained. Specifically, the social and industrial fabric as the framework within which firm capability and operator competence take place will be explained.

Third, a few examples from the case study of the Philippine Long Distance Telephone Company (PLDT) will be presented. These will illustrate how the social and industrial fabric enabled the Philippine firm to master the maintenance and repair of foreign made telephone switching technologies.

Technological mastery, expressed by the PLDT's ability to utilize its capability to use and develop the skills and competence of its operators, was made possible by the Philippine fabric. (Rubio, 1990) The importance of firm capability was shown as necessary for the better utilization of the operator's competence. Finally, some reflections and suggestions for future anthropotechnological studies of transferred technology will be given.

#### Anthropotechnology as a complement to ergonomics

Anthropotechnology is concerned with the adaptation of technology to the reality of the buyer country. (Wisner, 1992) While ergonomics endeavors to study the operator at work in the work station, anthropotechnology goes beyond these limits. In seeking solutions to improve work and production within the work setting, anthropotechnology also traces the

causes of difficulties both within and outside the work situation of the country where the imported devices are utilized. Therefore the anthropotechnological approach contributes to an understanding of factors in the utilization of foreign made technologies needed for industrialization.

## II. THE SOCIAL AND THE INDUSTRIAL FABRIC

### The social and industrial fabric defined and explained

The *social fabric* refers to the institutions, the base knowledge about the technologies, and other social supports for technology use and operation. On the otherhand, the *industrial fabric* refers mainly to technical and infrastructure supports to technology use and operation. (Rubio, 1990) A distinction was made between the social and industrial fabric. Whereas elements the social fabric may directly or indirectly contribute to knowledge and orientation about technology, the industrial fabric directly affects technology utilization. For example, educational institutions, an element of the social fabric, provides training in engineering and management. Technical manuals and spare parts of the industrial fabric are used in the operation and maintenance of the technical devices.

### Components of the social and industrial fabric

The components of the social fabric include non- formal and formal education (e.g., engineering and management, computer science, vocational/technical); cumulative

experiences with technology (e.g., on-the-job training, hands on experience or learning-by-doing"); technological orientation ( e.g. values about technology, work ethic); professional associations (e.g., engineering, computer science, computer education); technological culture and history (e.g., experiences with technology; meaning and use of technology); and technological practices regarding maintenance and repair (e.g., re-cycling, remedies, replacing). (Rubio, 1990)

The industrial fabric consists of elements for repair and maintenance of technical devices to ensure their effective operation. Examples of these are: previous technical experiences (e.g., with electro-mechanical and electronic technology); repair shops (e.g., for new and old technological devices); shops selling spare parts; technical materials (e.g., books, maintenance manuals). Technical infrastructures (e.g., power supply, road, telecommunications and cable networks) are also considered part of the industrial fabric. (Rubio, 1990)

Most of the technological devices were conceived, designed and operated by DCs utilizing their well-developed technological base. High levels of productivity reflect the strength of their social and the industrial fabric. All the social and technical requirements (e.g., trained personnel, repair services, spare parts, power supply and other technical infrastructure) that enable the devices to function effectively are available. A strong social and industrial fabric not only ensures that machines function efficiently but also makes their development possible. (Rubio, 1990)

Several researchers (Sagar 1989, Meckassoua 1986, Abrahao 1986, Aw 1989, Kerbal 1989, Rubio 1993) have shown how certain constraints reduced the productive capacity of imported technology. Examples of these are inadequate training, lack of qualified personnel on site to do repair and maintenance work, organization and communication problems, lack of spare parts, poor road conditions, and unstable power supply. The weakness of the IDCs' social and industrial fabric resulted in lower productivity and poorer quality of goods. Well-trained operators could reduce machine breakdowns due to poor maintenance and repair. On the otherhand, the availability of spare parts and prompt delivery of these could lessen work stoppages due to repair work. Stable power supply ensures continuous production capacity.

#### The Philippine social and industrial fabric

The Philippine social and industrial fabric is strong in parts and weak in others. For example, schools in management, engineering and computer sciences produce graduates who work in technical and management jobs in the Middle Eastern countries, the United States, Indonesia, Thailand, Hongkong, Singapore, Australia and Canada. The Asian Institute of Management, a leading management school in the country, attracts students from the Asian region. However, training in vocational education still needs to be improved. For example, no training in telephony is available. Companies offering telephone services provide on the job training for its workers.

Many multinational companies have subsidiaries in the country that provide manufacturing, sales, spare parts, and repair services. Small neighborhood repair shops and repair centers of large companies could be found in many parts of the country. However, power fluctuations occasionally occur and telecommunications services and other infrastructures are still being improved.

PLDT's technological mastery, expressed in firm capability and operator competence, was attributed to the strength of the social and industrial fabric. Wherever the fabric was weak, management usually provided the missing elements like technical materials and training. Operators utilized their previous experiences, knowledge, technical materials from the firm that encouraged them to devise alternative solutions to difficulties in maintenance and repair.

### III. THE PHILIPPINE LONG DISTANCE TELEPHONE COMPANY

#### A brief background of PLDT

The General Telephone and Electronics Company of New York provided telephone services in the Philippines from the 1930s until 1966. In 1967 a Filipino group purchased the firm from the Americans. When the government operated telephone company closed in the 1970s, the Philippine Long Distance Telephone Company (hereafter referred to as PLDT) provided majority of the telephone services in the country. Now PLDT has a total work force



of 19,392 which services 1,196,860 telephone users or 90% of all telephone lines in the country. (1995)

At present PLDT operates and maintains the electro-mechanical switching system dating from World War II. In 1980, the analog type electronic switching technology was bought by PLDT from a multinational firm of an industrially developed country. The purchase contract included: the installation of the equipment, a two year warranty for repair, and training in the vendor country for some Filipino engineers who would eventually operate and maintain the technology. During the warranty period, foreign specialists from the vendor company were on call for any problems. An associated company of the foreign firm provided free repair services for defective printed circuit boards under warranty and charged for repair of boards (pcbs) no longer covered by warranty. (Rubio, 1990)

In 1968, Filipino management undertook organizational and operational changes. The acquisition of the electronic switching technology also required organizational changes to provide staff to operate, maintain and repair the technology.

### Methodology

The case study of PLDT focused on the maintenance and repair of two foreign made telephone devices namely, the Strowger type electro-mechanical and the analog type electronic switching technologies. Historical data included organizational changes and the evolution of telephone switching technology in the firm. Company documents included

statistical records, annual reports, memoranda, performance reports, and technical materials concerning telephone technologies.

Data about company plans on the two switching technologies and the actual activities concerning the operations of the electro-mechanical and the electronic switching technology were gathered. Key informants included different levels of management and technical personnel who were directly involved in the planning and implementation; operation, maintenance, and repair of the devices.

Finally, actual work activities of switchmen and engineers (hereafter called operators), who maintained and repaired both the electro-mechanical and electronic telephone switching technologies were observed. In the course of doing particular tasks of maintenance and repair, interviews and dialogues with them were also done by the researcher to verify observations and documentation of the procedures. This also enabled the researcher to gather data about the operators' reasons for certain actions and decisions during repair activities.

Data presented in this paper was limited to a few concrete examples of maintenance and repair of the electro-mechanical and electronic switching telephone technologies which demonstrate firm capability and operator competence. These examples were used to explain how the social and industrial fabric provided the context within which firm capability combined with operator competence to enable technological mastery to take place.

## EXAMPLES

### 1. Education and training as elements of the social fabric:

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#### INSERT FIGURE 1

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When Filipino management acquired the PLDT from the Americans in 1967, they found that there was no training in maintenance and repair in electro-mechanical technology in the firm. Since no school offered telephony courses in country, they created a training department. By 1982 there were at least 27 courses on telephony and other subjects on various aspects of work. (See Figure 1)

In 1982, two years after maintaining the imported electronic switching devices, operators who trained in the foreign vendor's country organised basic courses locally. Five years later, they offered specialised courses on the maintenance and repair of these electronic switching devices. (See Figure 1)

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#### INSERT FIGURE 2

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From 1982 to 1984, the Filipino operators undertook initial studies and experiments to repair printed circuit boards (pcbs). By the succeeding year, a repair center for printed

circuit boards was established. From repairing 20% of the peripheral devices in 1984, they had progressed to repairing 80% of these by 1986. (See Figure 2)

## 2. Maintenance and repair as elements of the industrial fabric

### Re-cycling and remedies

The operator's competence, which is the ability to diagnose, detect and correct equipment faults, was observed in maintenance and repair tasks. Since the electro-mechanical switches dated from the 1940's, some of the parts were no longer manufactured and test equipment did not function anymore.

To ensure that the non-availability of some spare parts does not hamper repair activities, the operators recycled discarded parts and fabricated testing devices. "Remedies" for defective parts, whose replacements were either not available or delayed in delivery, were also developed. For example, wipers for selector switches were re-assembled from those with some re-usable components. The rubber bushings of spring contacts were re-adjusted.

### The fabrication of the telephone handset

In 1985 when management organized a Cost Savings Contest, one of the award winning projects was a telephone handset, a test equipment for electro-mechanical switches.

This was fabricated from new parts and old, discarded but re-usable ones. This saved one large central office a total of 111,017FF that year.

The locally fabricated device was compared with three imported handsets one costing \$69.50 and two \$750 each. These were compared Using the following criteria: maintainability, durability, weight, loop resistance, calibration, availability of parts and repairability. Costing only 29.50 FF, the local handset had 95% parts available while the foreign made ones had only 15-20% of its parts available.

The fabrication of the module tester

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INSERT FIGURE 3

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In 1984 Filipino engineers with the support of management fabricated a module tester for defective printed circuit boards (pcbs). They used discarded, re-usable parts, new parts and the discarded parts from the electronic devices. They tested this device and found that they could use this to detect defective components. After several experiments, they devised procedures for diagnosing, detecting and replacing faulty components. From 1985 to 1988, this innovation progressively reduced the number of pcbs sent to the vendor's associated company for repair and saved the PLDT much needed funds. (See Figure 3)

### 3. Elements of the social and industrial fabric

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INSERT FIGURE 4

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#### Research on components of printed circuit boards

Filipino operators systematically undertook feasibility and economic studies on the repair of printed circuit boards after the acquisition of the electronic system. By 1985 the firm established a repair center to anticipate the increasing cost of repair and the termination of the warranty period. (See Figure 2)

Research consisted of the following activities: a. using a photocopy of the component side of the pcb, they manually tested and determined the function of each component, b. identifying the programmable which components for which they had no parts, c. testing which components were replaceable, c. checking the materials manual of spare parts and determining which parts were available locally, and d. the fabrication of a module tester to locate defective parts. (See Figure 4)

They considered their previous knowledge about electro-mechanical telephone devices and past experiences in repairing the PCM Lynch type of electronic system useful in this research.

**DISCUSSION:**

The anthropotechnological case study of the Philippine Long Distance Telephone Company (PLDT Co.) showed that the technological mastery or successful repair and maintenance of the telephone switching technology was due to a combination of the a. capability of the firm and b. competence of its operators. The social and the industrial fabric, which provided the framework for these, was found to be a significant factor in this mastery. (Rubio, 1990)

The firm succeeded in minimizing the country conditions which hampered the operators' work and helped develop their competence. Difficulties at work and solutions devised by both were attributed to the economic, geographic, cultural, historical and social conditions in the Philippines. (Rubio, 1990)

The previously cited examples showed that a combination of firm capability and operator competence was possible within the framework of the social and the industrial fabric. Both groups developed their own strategies to systematically identify problems and develop solutions.

PLDT through the identification of the technology requirements, optimisation of resources and anticipatory planning enabled its operators to perform their repair tasks well. The operators' competence enabled them to trace equipment faults and eliminate these. They

also innovated on new technical solutions when the usual ones were either not possible or not available.

The ability of the operator to a. use material and technical resources of the firm, b. draw from elements the social and industrial fabric and c. fabricate unavailable missing elements from both is a manifestation of his competence and innovativeness.

Therefore, necessary to optimising the use of the social and the industrial fabric was the ability of both groups to adequately assess their own capacities and limitations. This required a good knowledge of what technical resources they could get from this fabric.

This included their application of knowledge and experiences derived from the operation of the technical devices and the social and the industrial fabric.

#### IV. SOME REFLECTIONS AND SUGGESTIONS FOR FUTURE STUDIES

Through a few examples, the capability of the PLDT and its operators to draw from elements of the social and industrial fabric were illustrated. This section provides some reflections on competence and suggests future anthropotechnological studies concerning the social and industrial fabric. Further studies of the social and industrial fabric in relation to operator competence would also provide important insights for the development of social and economic policies concerning education, training and industrial development. Some of



these are: the distinction between technical and innovative competence, social cognition, non-formal communication and cultural factors.

Education and technical supports from the PLDT lessened problems of maintenance and repair caused by the inadequacies of the country's technological base. However, competence of the operators also depended on their ability to utilize socio-technical knowledge and experiences in their technical culture.

Therefore, the following important questions about operator competence, and related factors could be raised. For example, what material resources and knowledge does the worker derive from the firm? from the social and industrial fabric? How does the operator identify, locate and use the material resources and knowledge needed? What elements of the social and industrial fabric contribute to the enhancement of competence?

#### Technical competence and innovative competence

In IDCs where technologies are in varying states of modernity, a distinction could be made between technical and innovative competence. Technical competence is the ability to identify, trace and solve equipment faults according to procedures specified in the technical manuals. This competence, based mainly on knowledge and skill acquired from formal

technical training in the use of materials, limited them to identifying and replacing defective parts. It did not enable them to design and fabricate devices or develop alternative solutions.

On the otherhand, innovative competence is technical competence plus the ability to deviate from standard procedures and develop alternative ways of solving equipment faults beyond manual specifications. The fabrication of the handset for testing defective electro-mechanical switches is an example of this type of competence. (Rubio, 1990)

The role of the social and industrial fabric in developing these two types of competence could be explored. For example, research could focus on identifying what elements of this fabric are critical in developing innovative competence as compared to technical competence.

#### Social cognition and non-formal communication

Social cognition is defined as the operator's internal map of the firm and the social and the industrial fabric. The fabrication of testing devices required that operators have a good mental representation of the devices and the work required. It was also important that they identify specific material and human resources were available in the firm and the social and industrial fabric that they could use and where these could be found.

The non-formal communication network in the firm's formal organization could contribute to a better utilization of limited resources. How this informal network was used by the operator to acquire needed materials and technical advice could also give insights on problem solving at work. In IDCs with a social and industrial fabric, which is strong in parts and weak in others, informal communication networks can play a significant role.

For example, the information needed by the operator was available from several different sources in the large firm. The non-formal communication network was useful in locating and borrowing technical manuals; identifying those trained by the vendor on specific technical topics; locating discarded but still re-usable parts of the electronic switches and asking technical information. Using the information gathered, a testing device for printed circuit boards was fabricated. Telephone calls and informal consultations with people involved in different aspects of maintenance were helpful in the testing and development of procedures for detecting and identifying defective components.

### Cultural factors

Finally, the technological base of the country plays an important role in the operator's performance of his tasks and activities at work. It would be significant to explore how the operator's technical culture contributes to competence. A key factor seems to be not only a social map of the firm and the social and industrial fabric but also knowledge about optimising the use of available human and material resources.

One's technical culture, work ethic and practices give insights into taken for granted knowledge and practices at work. In the Philippines, due to lack of supplies, economical reasons or the age of the technology whose parts are no longer available, re-cycling and re-assembling re-usable parts of equipment are usually resorted to. The use of remedies or what operators refer to as "improvising" devices and solutions are a common practice in the country.

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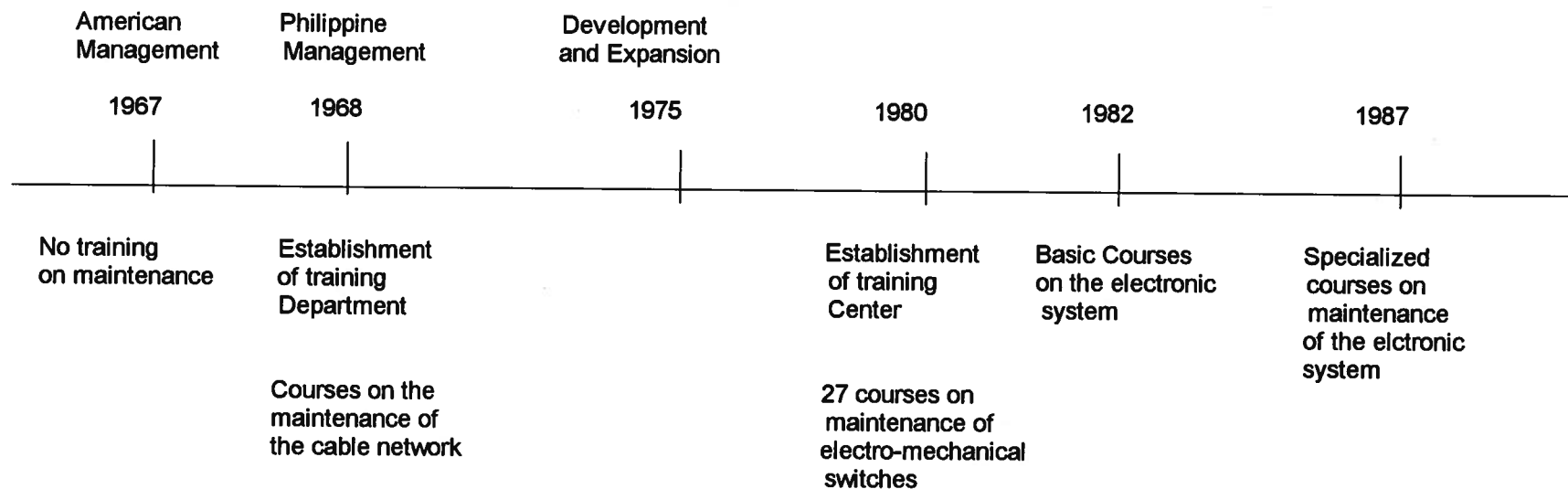
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**ABSTRACT:**

*Through a few examples of maintenance and repair work from the case of the Philippine telephone, company the relevance of these concepts, social and industrial fabric in anthropotechnological studies of work is explained and illustrated. The Philippine social and industrial fabric provided the framework within which technological mastery, expressed in both firm capability and operator competence enabled successful technology operation. The role of this fabric is crucial for a better understanding of how industrially developing countries can succeed in increasing productivity using foreign made technologies.*

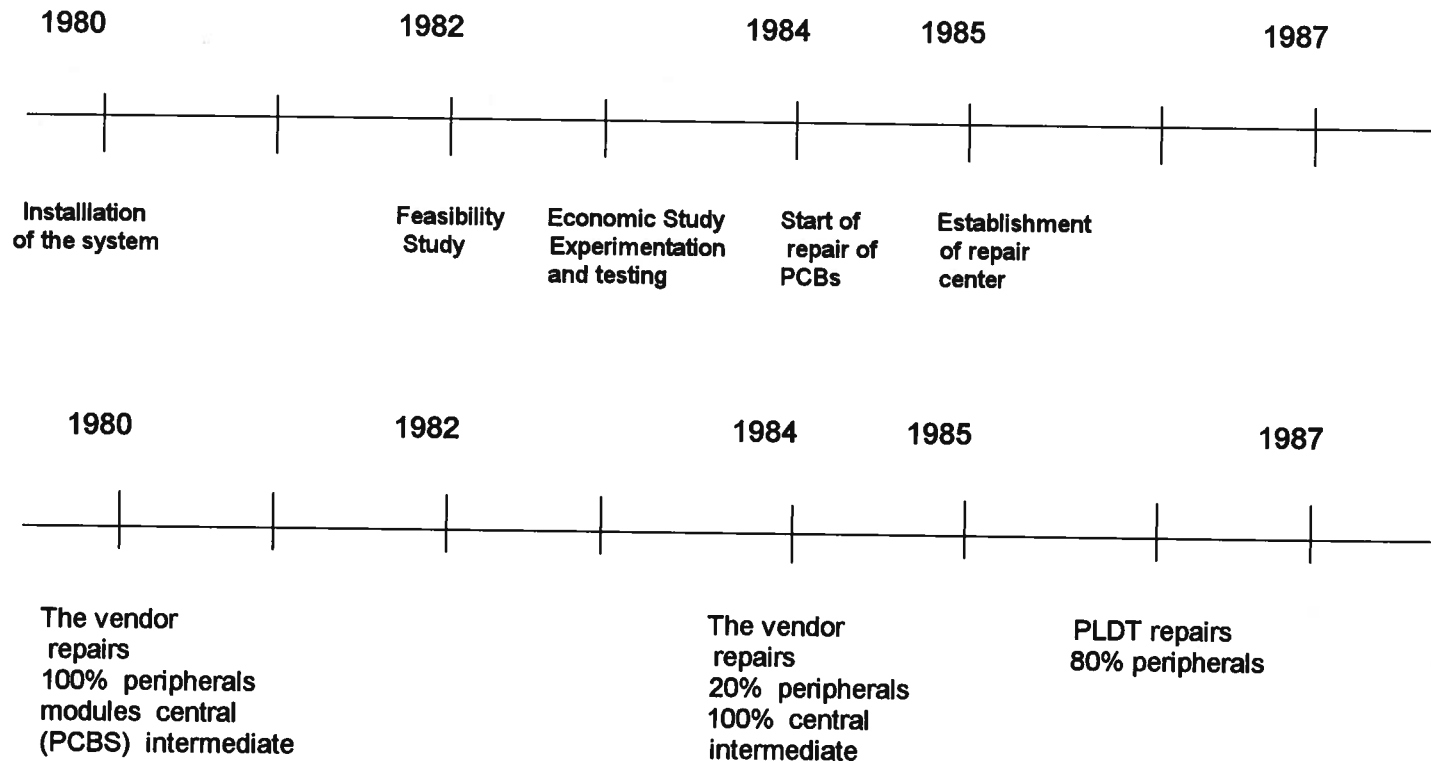
*Key-words: social fabric, industrial fabric, technological mastery, firm capability, operator competence*

**Figure 1 THE HISTORY OF TRAINING ON MAINTENANCE OF THE ELECTRO-MECHANICAL AND ELECTRONIC SYSTEM FROM 1967 TO 1987 \***



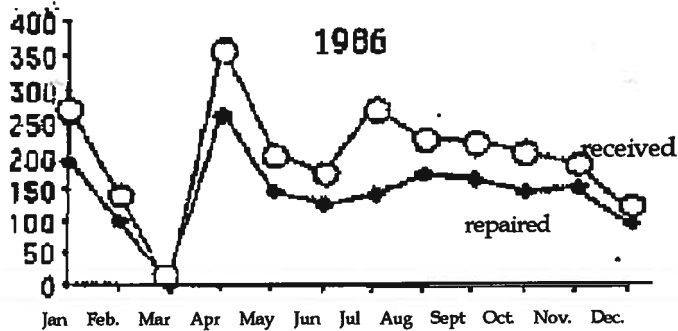
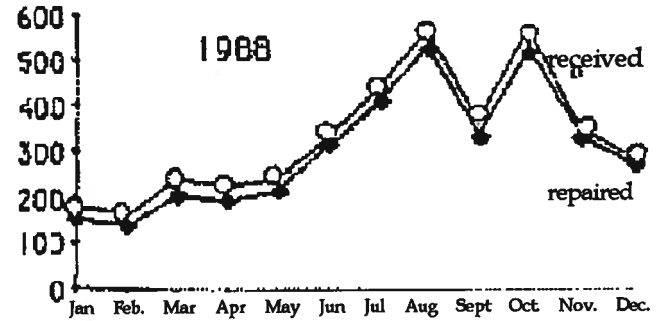
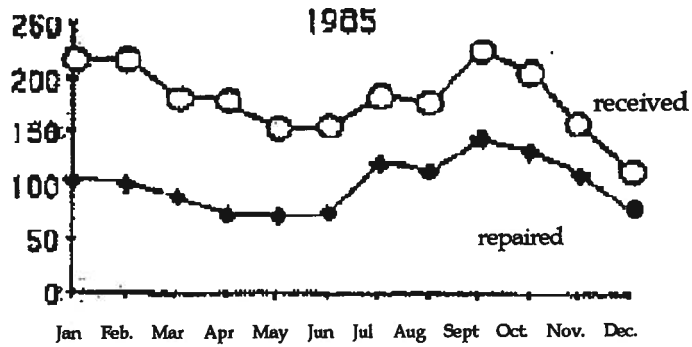
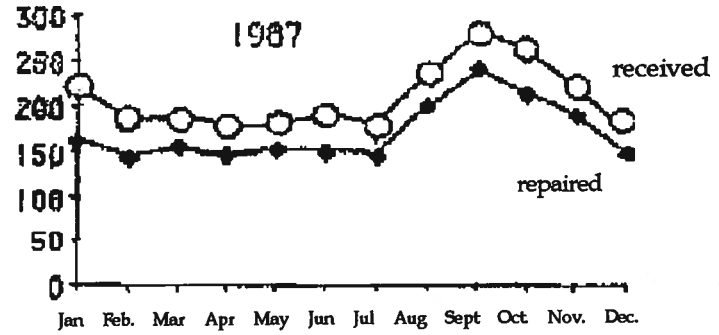
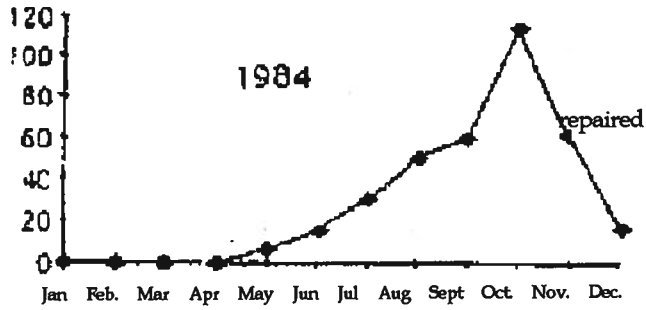
\* From Rubio, C. PhD. dissertation, *La Maitrise Technologique: L'exemple des Telephones Philippines*, 1990.

**FIGURE 2 PROGRESS ON THE REPAIR OF PRINTED CIRCUIT BOARDS OF THE ELECTRONIC SYSTEM 1980 - 1987\***



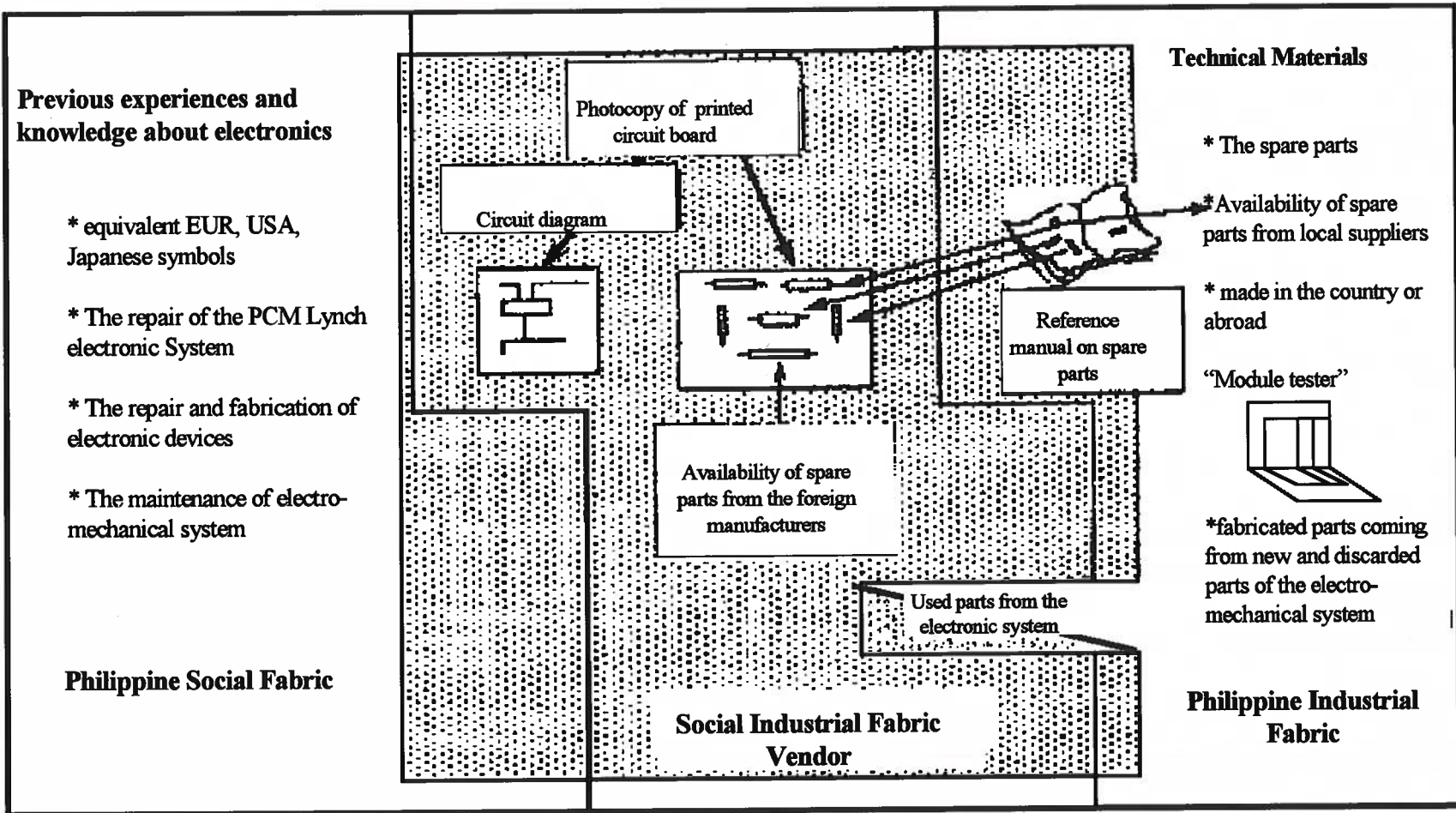
\* From Rubio, C. PhD. dissertation, La Maîtrise Technologique: L'exemple des Telephones Philippines, 1990.





**Figure 3: The printed circuit boards received and repaired by Printed Circuit Board (PCB) Repair Center from 1984-1988.**

From: Rubio, C. Ph.D. dissertation, *La Maitrise Technologique: L'exemple des Telephones Philippines*, 1990.



**Figure 4:** Research on components of printed circuit diagram and experiences on repairs by Filipinos  
 From: Rubio, C. Ph.D. dissertation, La Maîtrise Technologique: L'exemple des Telephones Philippines, 1990.

## L'APPROCHE ANTHROPOTECHNOLOGIQUE: LES TISSUS SOCIAL ET INDUSTRIEL ET LE TRANSFERT TECHNOLOGIQUE

### Resumé:

S'appuyant sur quelques exemples d'exposé sur le cas d'une compagnie de télécommunications philippines, cette étude développe et établit les concepts de tissu social et industriel d'une approche anthropotechnologique du travail propre à une étude consacrée à la technologie transférée. On constate que dans les pays en voie de développement industriel utilisant des technologies transférées, ces tissus dits social et industriel ont permis la maîtrise de la technologie traduite (a) par une capacité améliorée de l'entreprise, faisant ainsi valoir le savoir-faire de ses opérateurs, et (b) par la meilleure compétence de ces derniers, assurant ainsi le développement des solutions alternatives voire innovatrice aux problèmes de travail.

**MOTS-CLES:** Tissu social, tissu industriel, maîtrise technologique, capacité de l'entreprise, compétence de l'opérateur

Paris, le 28 Janvier 1994

Professor Clarissa Rubio  
Department of Sociology  
College of social sciences and  
Philosophy  
University of the Philippines  
Diliman Quezon City 1.101  
Philippines

Chère Clarissa,

Merci de vos bons voeux. Nous vous adressons, Jeanine et moi, ainsi que tous les membres du laboratoire, nos meilleurs souhaits pour 1994, pour vous-même et les vôtres.

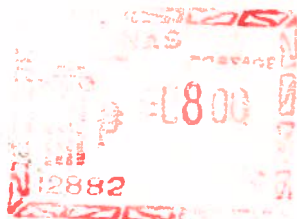
Je suis désolé d'apprendre que vous avez été malade, et que votre famille a été endeuillée.

Je continue à penser beaucoup aux Philippines, et à souhaiter y retourner quand le moment sera venu.

Bien amicalement.

A. Wisner

CLARISSA RUIGIO  
DEPT. OF SOCIOLOGY  
ESSP  
UP. DILIMAN, QC.  
PHILIPPINES



PROF. ALAIN WISNER  
LABORATOIRE D'ERGONOMIE  
CNAM  
41 RUE GAY LUSSAC  
PARIS 75005  
FRANCE

VIA AIRMAIL

VIA AIR MAIL

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★ Flight into Egypt • Master of the Dominican Passion, 1460, German. Courtesy of the National Museum of Crakow (Poland), to benefit the United Nations Children's Fund (UNICEF). ★ La fuite en Egypte • Maître de la Passion dominicaine, 1460, Ecole allemande. Reproduction autorisée par le Musée national de Cracovie (Pologne), au profit du Fonds des Nations Unies pour l'enfance (UNICEF). ★ La huida a Egipto • Maestro de la Pasión dominicana, 1460, alemán; cortesía del Museo Nacional de Cracovia (Polonia). Contribución al Fondo de las Naciones Unidas para la Infancia (UNICEF). ★ Бегство в Египет • Мастер доминиканской школы, 1460 год (Германия). Работа любезно предоставлена Национальным музеем, Краков (Польша) Детскому фонду Организации Объединенных Наций (ЮНИСЕФ) в благотворительных целях. ★ 逃往埃及。多明尼肯修道会大师，一四六〇，德国。（波兰）克拉科夫，国家博物馆惠准联合国儿童基金会使用。



December 1993

Dear Prof + Mrs Wiener,

Belated Christmas greetings

萬 Season's Greetings

賀 Meilleurs Voeux

新 Felices Fiestas

禧 Поздравлю

禧 Maligayang Pasko

My warm personal regards  
to you both + your family.

Please accept my apologies for  
not writing. Several illnesses  
+ a tragedy in the family  
have kept me busy.

Clarissa





MINISTÈRE DE L'ÉDUCATION NATIONALE  
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS  
ERGONOMIE ET NEUROSCIENCES DU TRAVAIL

Paris, 3rd September 1993

COPY  
of my previous handwritten letter

Mrs. Clarissa Rubio  
Department of Sociology, CSSP  
University of The Philippines  
Diliman,  
Quezon City  
The Philippines

Dear Clarissa,

I think that the best is to write to you in English though my style and spelling are rather broken in this language.

I was very happy to receive your letter and also a copy of the mail you sent to N.E.B. I am very sorry to have underlined the need for this report and a copy of your ticket but I was in a somewhat difficult position with them since I no longer have any contracts but always many travel needs for my colleagues and students.

I shall retire in less than 4 weeks as I shall be 70 soon but I have been selected as Professor Emeritus which means that without any money benefits except my retirement pension, I shall keep an office in the lab, receive some secretariat help and continue to assist the young researchers (around 15 of them) who are preparing their thesis with my help.

You explain that you have some difficulties to read French. I therefore send you the English version of some of my papers including one "Understanding Problem Building" that will be published next year in *Ergonomics*. The fact that I am writing for behaviourists and experimenters explain why I am rather careful in expressing my views.

The fact that more and more modern work activities are purely verbal raise the question of the nature of Ergonomics. It remains certainly a speciality orientated towards better working conditions, but a growing part of these conditions are not material but organizational and a growing part of the material we are working on are words. Some anthropologists and sociologists claim that in these conditions, we have no longer to work under the theoretical and methodological approach of Ergonomics but in a new speciality where the major contributions are coming from linguistics (sociolinguistics), cognitive anthropology and may be GARFINFEL's ethnomethodology.

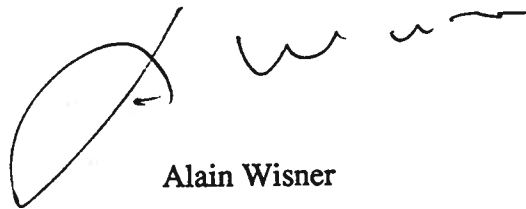
My views on this important question are not yet clear but I shall try at least to present some questions in the paper I am writing as an invited speaker at IEA Congress in Toronto next year.

You kindly offer to me to visit The Philippines for a short time this coming November. To me, it is a little late to reorganize my time schedule in Thailand but - more important - I am afraid to travel in two countries within the same month. Is it the effect of ageing ? I have also noted that the hotel prices are 2 to 3 times higher in The Philippines than the price I pay in Thailand or Brazil. Anyway, may be we can think of a special travel to The Philippines in 1994 or 1995.

I see that you are very active though the economic and social circumstances are still so hard in your country. I hope that things will get better soon.

With my best regards for you and your family.

Yours sincerely,

A handwritten signature in black ink, consisting of a large, stylized initial 'A' followed by the name 'Wisner' in a cursive script.

Alain Wisner



MINISTÈRE DE L'ÉDUCATION NATIONALE  
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS  
ERGONOMIE ET NEUROSCIENCES DU TRAVAIL

3rd September 1993

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With my best regards for you and your family

**UNIVERSITY OF THE PHILIPPINES SYSTEM**  
**Quezon City**

3 August 1993

Dear Professor Wisner,

I just received your letter dated 29 June 1993. Please accept my sincere apologies for not having kept in touch with you the past months. I am afraid I have been remiss in my responsibilities to you and NEB.

Since my return from Paris last April 1992, work which continually piled up, family concerns and problems concerning my housing unit at the UP campus completely distracted me. I was unable to send the airplane ticket and my report to NEB.

Life has been very difficult the past year here in my country. The situation seems to have gone from bad to worse. Almost nothing works well. Our work has been disrupted by the brown-outs which can last from 6 to 8 hours during the day with very unpredictable periods and duration. Traffic is very bad and floods are more frequent. Our mail and communications seem to have become more inefficient.

Sometimes mail gets lost. It would be safer for you to send all your communications to the following address and not my residence on campus:

Department of Sociology  
College of Social Sciences and Philosophy  
University of the Philippines  
Diliman, Quezon City 1101  
Philippines.

I am enclosing photocopies of the following pertinent papers concerning my visit to Paris last April 1992: (a) the plane ticket and (b) a brief report of my activities. I am sending the original papers to NEB. I truly apologise to you for the delay in sending these papers and for any problems I may have caused you with NEB.

Dr. Apolonario Nazarea, a biophysicist and member of the National Academy of Sciences of the Philippines is interested in inviting you to give a lecture to the scientists of the Academy. I had told him of my dissertation and shown him some of your publications. I had also explained to him the work we have been doing on ergonomics and technology transfer. He is requesting for a copy of your curriculum vitae and is asking if you would be available to come to the Philippines while you are in Bangkok this fall.

I hope you could make it even on such short notice. This would be the best way yet to introduce ergonomics to the scientific community in the Philippines.

In my own small way, I have been trying to introduce ergonomics in teaching the sociology of work. Together with a colleague from sociology, I am doing a small study for a sugar central in the country. Here, I hope to introduce ergonomics to the management.

Early this year, I was a member of the Search Committee to select the president of a state college in the province of Palawan. This entailed several trips to familiarise myself with their programs to better select a suitable president. I was able to interest the out-going president in ergonomics and technology transfer of their agricultural technology. I am also doing some work for the new president and hope to interest her in this too.

At present, I am busy preparing a paper on the management of technology of hospital laboratories for the Congressional Commission on Health which is tasked with drafting legislation. They had asked me to prepare suggestions for possible legislation on occupational health. But I felt that the subject was too broad, the time too short and that I was not competent to do the job.

In all these activities, I am trying to introduce some ergonomics whenever I can. I do all these together with my teaching responsibilities and administrative work at the UP.

We just concluded the selection of our Department chairman. My former housemate who has a PhD from England is my chairman. This should give you an idea of my work situation at present.

Please excuse me for taking time in reading your French text. I have lost touch with the language and lack practice.

Despite the short notice, I hope you are able to come to Manila and meet the scientists of our Academy. Once they have your curriculum vitae, they will probably be able to send you the invitation.

My warmest personal regards to you and your family.

Sincerely,

*Clarice*

UNIVERSITY OF THE PHILIPPINES SYSTEM  
Quezon City

23 August 1993

Dear Professor Wiener,

I just received this letter I mailed for you. Please accept my profound apologies. In my hurry to mail it to you, I failed to put the complete address.

I am truly very sorry. I am mailing this at the airport as I did before. I cannot afford a quicker way of sending this to you.

Sincerely,

Clarissa

UNIVERSITY OF THE PHILIPPINES SYSTEM  
Quezon City

M. le Secretaire General  
de NEB  
College de France  
11 Place Marcelin-Berthelot  
75231 Paris Cedex 05

Manille le 3 Aout 1993

Cher M. le Secretaire,

Je vous serais tres reconnaissante d'avoir bien voulu  
m'accorder une bourse en Avril 1992 pour aller a Paris.

Je regrette que vous n'avez pas reçu mon billet d'avion  
ni mon compte rendu de ma mission. Quelques problèmes au  
travail m'avait empeche de les faire. Vous trouvez ci-joint  
cette billet d'avion avec mon compte rendu.

Je vous prie d'agreer cher Monsieur l'assurance de mes  
salutations distinguees.

*Clarissa Rubio*  
Clarissa Rubio

*copie par Prof Wiener*



COMPTE RENDU DE MISSION : SEJOUR DE RECHERCHE AU CNAM

PROGRAMME D'ACTIVITE:

A. Intervention dans le cadre du séminaire sur l'anthropotechnologie

Public: Etudiants de 3e cycle, chercheurs étrangers et français

L'apport de la sociologie en tant que discipline complémentaire a été présentée. Les approches méthodologiques utilisées par les ergonomes et sociologues ont été distinguées.

La sociologie en tant que discipline a été brièvement expliquée. Des études sociologiques de travail ont été élaborées notamment l'importance des études concernant le transfert de technologie dans les pays en voie de développement industriel (PVDIs).

Le transfert de technologie et son importance dans les PVDIs ainsi que les problèmes qui se posent concernant ce transfert ont été présentés. Les différences entre les conditions de l'utilisation de la technologie dans les pays développés et industrialisés (PDI) ont été citées en particulier le cas de systèmes de commutation de téléphone Philippin.

2

Un entretien avec les chercheurs et les étudiants de 3e cycle sur le rapport de la sociologie avec leurs thèses sur l'ergonomie a été fait aussi.

B. Entretien avec les chercheurs au Laboratoire d'ergonomie et neurosciences, CNAM

La série d'entretien avec les chercheurs du laboratoire avait pour but de familiariser avec le développement de recherche qu'ils font récemment and avec les nouvelles tendances dans l'ergonomie.

C. Entretien avec les étudiants de doctorat

La série d'entretien avec les étudiants de doctorat au Laboratoire d'ergonomie et neurosciences du travail au CNAM s'est effectuées avec les étudiants qui suivent:

1. M. Francisco Duarte
2. M. Poly Langa
3. Mme Stella Langa
4. Mme France Ruest

Ces entretiens portaient surtout sur les difficultés qui se posaient dans l'élaboration de leurs thèses. On a également discute le cadre theoriques, les présentations et analyse des données.

#### D. Recherche

Des documents sur l'ergonomie ont été recueillis pour l'enseignement de la sociologie et de l'ergonomie a l'Université des Philippines. Ces documents sur l'ergonomie sont d'autant plus importants qu'il ya un manque de matériel dans ce sujet aux Philippines.

Prepared par:

Dr. Clarissa Rubio  
Department of Sociology  
College of Social Sciences &  
Philisophy  
University of the Philippines  
Diliman, Quezon City 1101  
Philippines



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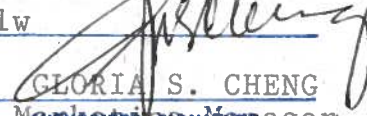
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Paris, le 29 Juin 1993

Madame Clarissa Rubio  
137 Valenzuela St Area 2  
UP Campus  
Dilima Quezon City  
Philippines

Chère Clarissa,

Je rencontre des difficultés pour l'attribution de nouvelles bourses de voyage pour des collègues étrangers du fait que NEB n'a pas encore reçu le bref compte-rendu de voyage et la lettre de remerciements qu'elle demande aux boursiers de lui faire parvenir.

Je ne sais pas non plus si vous avez fait parvenir à NEB votre billet d'avion après usage. Il faudrait écrire à Madame Sophie Pijenell, NEB, 6 rue Casimir Delavigne, 75006 Paris.

Je ne sais pas non plus si vous avez reçu les livres que le laboratoire vous a expédiés, ainsi que la longue lettre que je vous ai écrite pendant mes vacances, le 13 Juillet 1992. Je vous en fait parvenir une copie ci-joint.

La situation du laboratoire et de moi-même évolue comme prévu. Je serai à la retraite comme Professeur Emérite à partir du 1er Octobre 1993, avec comme tâche essentielle, de mener à bien la direction d'une quinzaine de thèses dont la moitié sont préparées par des Français et l'autre moitié par des non-Français.

Les thèses soutenues récemment sont celles de Yvon Aradji et Milton Carlos Martin. Fin 1992, les doctorants ont été Jean-Pierre Brun et Alain Garrigou. Je pense que d'ici la fin de l'année, les thèses de Poly Langa, Hakim Benchekroun, et peut-être Francisco Antunes Lima seront soutenues.

François Daniellou a bien été nommé Professeur à Bordeaux. Pierre Rabardel sera transféré à l'Université Paris VIII, le 1er Octobre prochain, Alain Berthoz a prononcé une superbe leçon inaugurale au Collège de France.

Je crois vous avoir aussi fait parvenir un projet d'article intitulé : "L'organisation de l'entreprise et du travail lors de transferts de technologie", article dans lequel j'évoquais certains de vos travaux. Depuis, ce texte est paru en

Espagnol dans la revue "Sociologia del Trabajo". Une partie va être publiée dans un livre jubilaire offert à Jean-Daniel Raynaud.

Certains éléments seront présentés en anglais à la prochaine réunion de l'ODAM à Stockholm en 1994.

J'espère que vous trouverez un peu de temps pour m'exprimer vos réactions sur ce texte dont je vous joins un exemplaire en anglais. Je vous fais parvenir également la version anglaise d'un texte que vous connaissez sur les systèmes dangereux.

J'ai passé le mois de Mai au Brésil, et me prépare à aller travailler de nouveau en Thaïlande en Novembre avec Kitti Intaranont, et Malinee Wongphanich.

Je suis toujours disposé à aller un jour aux Philippines, mais pour cela, je souhaiterais avoir des réponses aux questions que je pose dans la lettre ci-jointe.

Dans l'espoir d'une prompte réponse à NEB et à moi-même, je vous adresse, chère amie, l'expression de mes sentiments amicaux et dévoués.

A. Wisner



# NATURALIA ET BIOLOGIA

Association déclarée sous le numéro 58/1033 - Loi de 1901

Adresser la Correspondance à  
M. le Secrétaire Général

de N. E. B.

COLLÈGE DE FRANCE

11, PLACE MARCELIN-BERTHELOT  
75231 PARIS CEDEX 05

PARIS, le 28 JUIN 1993

Monsieur le Pr. WISNER

Cher(e) Collègue,

Lors de sa dernière réunion, le Bureau de notre Association a relevé que vous n'aviez pas rendu compte de certaines subventions qui vous avaient été accordées par le passé :

<u>Date de Versement</u>	<u>OP</u>	<u>Bénéficiaire</u>	<u>Objet</u>
AVRIL 1992	4418	RUBIO	MISSION

Je me permets d'attirer votre attention sur le fait que ces justificatifs sont absolument indispensables à notre Service Comptable et à tout contrôle qui pourrait avoir lieu concernant les activités de notre Association.

C'est pourquoi je vous engage vivement à faire en sorte que le compte-rendu des subventions ci-dessus indiquées nous soit adressé dès que possible.

Dans l'intérêt même de l'Association, le Bureau a considéré qu'il ne serait pas possible d'accorder d'autres subventions aux membres tant qu'ils n'auraient pas justifié des subventions précédentes.

Je vous prie de croire, Cher(e) Collègue, à l'expression de mes sincères salutations.

Sylvie BOILEAU  
Secrétaire Général



Cc. Mr MARIOTTI, Trésorier

3 Septembre 1991

Madame Clarissa Rubio  
137 Valenzuela St Area 2  
UP Campus  
Dilima Quezon City  
Philippines

Chère Clarissa,

Après 5 semaines de vacances qui m'étaient bien nécessaires, je reprends mes projets et en particulier celui que nous avons formé de ma prochaine visite aux Philippines.

Je suis heureux de vous confirmer que j'arriverai à Manille le dimanche 20 Octobre à 2h. 35 pm. par le vol TG 620. Je repartirai à Bangkok le vendredi 1er Novembre à 7h. 40 pm. par le vol TG 625. J'aurais préféré arriver un ou deux jours plus tôt, et repartir un ou deux jours plus tard, mais, selon "Nouvelles Frontières", il n'y avait plus que ces vols-là qui soient disponibles.

J'accepte volontiers votre proposition de séjourner à l'hôtel situé sur le Campus de l'U.P. de Dilima. Je serais heureux que vous puissiez m'y réserver une chambre pour 12 nuits.

J'aimerais aussi recevoir, le plus rapidement possible, le nom exact, l'adresse, le téléphone, et si possible, le fax de cet hôtel, de façon à l'inscrire sur mon plan de voyage.

Je suis extrêmement heureux de revoir votre pays où je n'ai pas été depuis la chute du Président Marcos, de retrouver mes anciens amis, et surtout d'avoir le temps de discussions approfondies avec vous.

Je ne suis absolument pas hostile aux conférences publiques et aux cours, mais je préférerais de beaucoup des entretiens avec des chercheurs isolés ou avec des groupes de chercheurs. L'essentiel est toutefois que je sois employé de la façon la plus utile possible.

Je vous demande instamment de ne pas vous préoccuper des questions financières : je n'ai pas de problèmes à ce propos.

Veuillez me faire savoir si vous-même ou vos collègues auriez besoin que j'apporte quelques objets ou documents aux Philippines.

A bientôt donc et bien amicalement.

A. Wisner

Paris, le 29 Juin 1993

Madame Clarissa Rubio  
137 Valenzuela St Area 2  
UP Campus  
Dilima Quezon City  
Philippines

Chère Clarissa,

Je rencontre des difficultés pour l'attribution de nouvelles bourses de voyage pour des collègues étrangers du fait que NEB n'a pas encore reçu le bref compte-rendu de voyage et la lettre de remerciements qu'elle demande aux boursiers de lui faire parvenir.

Je ne sais pas non plus si vous avez fait parvenir à NEB votre billet d'avion après usage. Il faudrait écrire à Madame Sophie Pijenell, NEB, 6 rue Casimir Delavigne, 75006 Paris.

Je ne sais pas non plus si vous avez reçu les livres que le laboratoire vous a expédiés, ainsi que la longue lettre que je vous ai écrite pendant mes vacances, le 13 Juillet 1992. Je vous en fait parvenir une copie ci-joint.

La situation du laboratoire et de moi-même évolue comme prévu. Je serai à la retraite comme Professeur Emérite à partir du 1er Octobre 1993, avec comme tâche essentielle, de mener à bien la direction d'une quinzaine de thèses dont la moitié sont préparées par des Français et l'autre moitié par des non-Français.

Les thèses soutenues récemment sont celles de Yvon Aradji et Milton Carlos Martin. Fin 1992, les doctorants ont été Jean-Pierre Brun et Alain Garrigou. Je pense que d'ici la fin de l'année, les thèses de Poly Langa, Hakim Benchekroun, et peut-être Francisco Antunes Lima seront soutenues.

François Daniellou a bien été nommé Professeur à Bordeaux. Pierre Rabardel sera transféré à l'Université Paris VIII, le 1er Octobre prochain, Alain Berthoz a prononcé une superbe leçon inaugurale au Collège de France.

Je crois vous avoir aussi fait parvenir un projet d'article intitulé : "L'organisation de l'entreprise et du travail lors de transferts de technologie", article dans lequel j'évoquais certains de vos travaux. Depuis, ce texte est paru en

Espagnol dans la revue "Sociologia del Trabajo". Une partie va être publiée dans un livre jubilaire offert à Jean-Daniel Raynaud.

Certains éléments seront présentés en anglais à la prochaine réunion de l'ODAM à Stockholm en 1994.

*me a tranquil je me j'ai un verre  
changer*

J'espère que vous trouverez un peu de temps pour m'exprimer vos réactions. J'ai passé le mois de Mai au Brésil, et me prépare à aller travailler de nouveau en Thaïlande en Novembre avec Kitti Intaranont, et Malinee Wongphanich.

Je suis toujours disposé à aller un jour <sup>aux Philippines</sup> ~~en Thaïlande~~, mais pour cela, je souhaiterais avoir des réponses aux questions que je pose dans la lettre ci-jointe.

Dans l'espoir d'une prompte réponse à NEB et à moi-même, je vous adresse, chère amie, l'expression de mes sentiments amicaux et dévoués.

A. Wisner

Fercalquier 13 juillet 1992

Chère Clarissa,

Votre lettre du 15 juin m'est parvenue à Fercalquier où je passe le mois de juillet en famille par mes vacances.

Je suis heureuse que votre séjour à Paris se soit bien passé et que vous ayez trouvé des possibilités de travail. Vous recevrez d'ici quelque temps les livres que vous souhaitez posséder. Je suis heureux que vous ayez discuté avec France Buisson qui est très sympathique. Mais j'espère que vous vous êtes aussi entretenus avec Francisco Duarte et surtout Pol Langen qui est un brillant chercheur dans le domaine que, je le pense, considérée comme nouvelle si de l'autre niveau en organisation du travail.

Je suis également très content de d'annoncer vos succès scientifiques: nomination à une chaire (pourquoi vous préparer la tenue de votre conférence inaugurale), acceptation de votre tentative pour la conférence WWPU et pour la tenue à Carabona. N'oubliez pas de m'adresser ces textes ainsi que votre lettre en français de votre exposé au Laboratoire. Merci de l'avance.

Vous me demandez comment trouver des sources de financement pour vos voyages dans l'avenir et je dois dire que je ne sais pas comment répondre à cette question. En ce qui concerne les sources françaises, elles ne financent que les voyages vers la France et je crains qu'en ce qui me concerne, elles ne soient

limité plus des possible à ma demande y compris <sup>à</sup> NEB. En (4)  
effet je suis à la retraite le 1<sup>er</sup> Octobre 1993 et à partir de  
cette date, mon pouvoir administratif devient négligeable.  
En ce qui concerne les organisations internationales, je vais que  
le mieux serait de signaler votre des possibilités au D. HOGG  
au BIT, tant que lui aussi prend sa retraite bientôt (probablement  
le 1<sup>er</sup> Janvier 1994) et il compte toujours comme collaborateur  
Mademoiselle DEE qui n'a jamais subi les vos et autres  
philippins travaillant en relation avec le Service Hygiène,  
Sécurité et Conditions de Travail du BIT... Mais, il faut  
envisager. Je crois que les organisations allemandes et surtout  
japonaises financent beaucoup de recherches en Asie du Sud-Est.  
Peut-être pourriez-vous ~~vous~~ vous mettre en relation avec eux.

Je j'ai noté avec regret qu'un double malentendu s'est  
formé entre nous. D'une part, il n'a jamais été question  
dans mon esprit d'aller aux Philippines au mois d'Avril. Il  
me paraît pas raisonnable pour moi d'aller 2 fois en Asie du  
Sud-Est en 3 mois <sup>ou</sup> selon un projet déjà ancien, je retournerai  
en Thaïlande <sup>à</sup> ~~et~~ à Singapour si peut-être aux Vietnams entre  
le 15 Octobre et le 1<sup>er</sup> Décembre 1993 car en Thaïlande en  
particulier, je suis initié par KITTI INTARANONT et MALINEE  
WONGPHANICH à donner des conseils de conseil et à travailler  
à la création de structures d'ergonomie en THAÏLANDE. J'ai  
peut-être aller aux PHILIPPINES aussi, mais je ne l'ai pas  
confirmé, l'un des lieux d'annonce d'enseignement d'ergonomie  
à U.P. Vous <sup>m'</sup>avez d'ailleurs <sup>fait</sup> remarqué que vous aviez dû

arriver à résoudre votre situation en Sociologie avant de  
 vous tourner vers l'Ergonomie. Mon opinion est que la situation  
 n'a pas encore évolué assez, pour retourner aux Philippines  
 je pense que je pourrai peut-être le faire à l'automne  
 1993 si d'ici là, un enseignement a été créé à  
 U.P. dans ce domaine. Cela fera presque 20 ans que j'ai  
 mis une peu la première fois parler d'ergonomie à Manille  
 Si les Philippines n'ont pas pris d'initiative significative  
 c'est probablement que le pays a d'autres besoins. En ce qui me  
 concerne, j'ai été obligé d'être économe de mes forces comme  
 de mes ressources financières puisque, comme vous le savez, j'ai  
 ne suis jamais financé par un organisme pour mes voyages  
 en Asie du Sud-Est. Je vous demande donc d'annuler  
 la réservation auprès de A.I.T.

Vous avez bien voulu négocier un accord franco-philippin  
 au sein de l'U.P. et le CNAM dans le domaine  
 de l'ergonomie. Là encore, j'ai été un peu déçu car j'ai vu  
 pas - ou plus - de possibilités du côté français. Il m'est  
 impossible de négocier un accord au nom du CNAM pour  
 un futur qui me sera par le même compte tenu de ma prochaine  
 retraite d'autant plus que le P. FALZON n'est pas mon  
 élève et n'est pas orienté de la même façon que moi. Il  
 est surtout un psychologue cognitiviste orienté vers  
 l'amélioration des Softwares. Ma succession dans le domaine  
 du transfert de technologie et des relations avec les P.V.P.I. est

n'ait pas <sup>arrivés</sup> ~~arrivés~~ et en tous cas pas au CNAM. Le P. LAVILLE  
à l'E.P.H.E, s'initie aux problèmes de santé posés par  
le handicap de l'écologie mais de façon assez modérée. François  
DAMIELLOU reprendra peut être la question de l'anthropotechnologie  
s'il est, comme je le pense, nommé professeur de génie industriel  
à l'Université de Bordeaux le 1. Octobre 1993 mais cela  
ne pourra être sa première urgence lors de son installation.  
Les P. Bernard PAVARD et Christophe DESOURS montrent  
aussi un certain intérêt pour ces questions mais cela  
n'ait pas leur priorité et ils sont surchargés. Je pense  
donc qu'il faut reporter le projet d'accord qui reçoit  
préférence française plutôt que U.P. - CNAM. et cela  
dans la perspective d'une négociation dans 2 ou 3 ans.

Je regrette tous ces malentendus probablement liés au  
fait que l'essentiel de votre séjour à PARIS se soit passé  
en mon absence, car vous ~~avez~~ avez été amenée à  
choisir pour votre séjour une période qui ne me convenait  
pas.

Je crois donc qu'il faut envisager une reprise de nos  
relations de travail pour l'automne 1993 si ma santé et  
l'état de mes finances me permettent, comme je l'espère, d'aller  
aux Philippines à cette époque et si le besoin de développer  
l'Engenierie apparaît clairement aux reins de l'Université et  
de l'Economie philippines.

Je vous félicite à nouveau pour vos succès et regrette ces  
malentendus. Veuillez agréer, chère Clarissa, les amitiés de  
ma femme et de moi-même

*[Signature]*



Paris, le 19 Juin 1992

Melle le Professeur Clarissa Rubio  
137 Valenzuela St Area 2  
UP Campus  
Dilima Quezon City  
Philippines

Chère Clarissa,

Je vous remercie de votre lettre, si amicale, trouvée à mon retour à Paris, ainsi que votre livre sur l'histoire récente des Philippines selon le point de vue de Marcos.

J'espère vraiment que votre nouveau Président pourra servir son pays comme il à l'air de le souhaiter.

Je vais vous faire adresser les 4 livres que vous avez indiqués, mais je voudrais savoir si vous ne souhaitez pas, en outre, disposer d'un ou deux livres d'anthropologie cognitive parmi ceux dont vous pouvez lire des extraits dans les documents que je vous ai remis.

En effet, le point de vue d'Eysenck sur la cognition est aussi éloigné de ce qui nous est utile qu'il est possible.

Je commence à préparer mon séjour en Asie du Sud-Est pour l'automne prochain, et je ne pense pas que j'aurai le temps d'aller aux Philippines car j'ai un programme très lourd en Thaïlande, et je vais probablement aller aussi à Singapour et au Vietnam.

J'ai d'ailleurs cru comprendre que vous pensiez qu'il était un peu tôt pour lancer l'ergonomie aux Philippines, compte tenu de la situation politique. Peut-être pourrons-nous faire cela en 1993, si ma santé le permet.

Bien amicalement.

A. Wisner

29 Mai 1992

Dear Professor Wisner,

I would like to thank you for giving me the opportunity to come back to Paris. This has been a good occasion for me to do some bibliographic work, discuss with fellow researchers & experience Paris without the pressure of working on my thesis.

I hope you found my oral presentation at your seminar useful for anthropotechnology. My stay here has been very profitable academically also in terms of my reflection about my work. I wish though I had a chance to discuss anthropotechnology & sociology, especially the teaching of the former.

Enclosed is a book on Marco. It is not very good reading but it is the only one that shows the point of view of his followers. You could say, his side of the story.

You had mentioned that you could help me get some books which you could send me to the Philippines. May I give you this list which you could choose from. I found these at OFFILIB.

1. GIDDENS, ANTHONY SOCIOLOGY GREAT BRITAIN  
BUTLER & TANNER LTD FROME



2. EYSENCK, MICHAEL & MARK KEANE COGNITIVE PSYCHOLOGY: A STUDENTS HANDBOOK 1990



LAWRENCE EARL BAUM ASSOCIATE PUBLISHER  
HILLSDALE HOVE.

3. LIVINGSTONE, ERIC MAKING SENSE OF ETHNOMETHODOLOGY ROUTLEDGE & KEGAN PAUL LONDON NEW YORK 1987



4. CALLON, MICHEL, JOHN LAW, ARIE RIP MAPPING THE DYNAMICS OF SCIENCE AND TECHNOLOGY 1986



I bought a book at FNAC which might  
be interesting for anthropotechnology. ✕

ALVARES, CLAUDE DECOLONISING HISTORY: TECHNOLOGY  
AND CULTURE IN INDIA, CHINA + THE WEST  
1412 TO THE PRESENT DAY. THE APEX PRESS  
NEW YORK USA. ?

Thank you very much again for continuing  
to support my academic work.

Sincerely,  
Clarissa

23 March 92

Dear Prof Wisner,

I am glad to be back here in Paris. I brought you some mangoes. I hope they will last until Wednesday 25 March when they said you will be here in the afternoon.

Please accept my apologies for not writing you of my arrival. There were some problems about my departure preparations. I will tell you about it when I see you on Wednesday.

Sincerely,

Clarice

PARIS, le 25 Mars 1992

Madame, Monsieur  
Responsable de la Bibliothèque

Madame, Monsieur,

Je vous serais reconnaissant de bien vouloir favoriser l'effort de documentation que réalise Mademoiselle Clarissa Rubio, Professeur de Sociologie du Travail et d'Ergonomie, à l'Université des Philippines à Manille. J'ai obtenu le financement de son séjour en France et je souhaiterais également qu'il soit le plus fructueux possible.

Les difficultés pour obtenir de la documentation à Manille sont la raison principale de la mission de Mademoiselle le Professeur Rubio.

Je vous prie d'agréer, Madame, Monsieur, l'expression de mes sentiments les meilleurs.

A. Wisner  
Professeur au Conservatoire  
National des Arts et Métiers

**UNIVERSITY OF THE PHILIPPINES SYSTEM**  
**Quezon City**

Professor Alain Wisner  
Laboratoire D'Ergonomie  
CNAM 41 Rue Gay Lussac  
Paris 75005 France

21 January 1992

Dear Professor Wisner,

I only received your letter more than a week ago. Please excuse the late reply. Before writing you, I assessed my work load and consulted the Dean and my chairman about scheduling my trip to Paris in relation to our academic calendar.

Thank you very much for your continued support of my modest efforts to contribute to ergonomics here. It has been a constant source of inspiration and encouragement for me. I would very much like to go there before April 15 to attend some seminars in the laboratory. Giving a seminar would also be useful experience and good for my career.

My first preference, therefore, is to go there by 26 March (or the 24th, if possible, depending on flight schedules). With limited time and pre-travel arrangements to make, I cannot write a good paper to distribute there but I could base the seminar on my papers on: (a) Improving the quality of work: sociology as a complementary discipline to ergonomics and (b) Toward a successful technology transfer (TT) to industrialising countries: some sociological considerations for ergonomists. I could bring a draft and send the final paper later.

Based on my thesis and the present Philippine situation, I could elaborate on inputs to an approach to study TT (e.g. sociological methodologies, social and industrial tissue, research constraints, the importance of organisation and culture, etc.). The seminar would be an occasion for me to present ideas for a draft paper for my PNOG Professorial Chair Award from the University and for which I am to write a paper by June 1992. I hope to include additional ideas and perspectives gleaned two years after my thesis. Would these be acceptable to you?

I plan to use my vacation leave and have a longer time to do careful bibliographic research on english and french books and other reference material there. Financially, this will be possible if I go to Paris from 26 March to 4 June 1992 because my uncle will most probably still be there and I could stay with them.

Dean Salazar will also try to arrange with the French Embassy a two-week visit for me meet and discuss with sociologists and ergonomists in France during my stay. Could you suggest universities I could visit and researchers I could meet which I will propose to the Embassy here?

A second alternative would be for me to go to Paris on 27 April to 30 June. By this time, classes there would be over and accommodations could be a problem because my uncle would probably move away from Paris already. Financial constraints will limit my time to stay there and do bibliographic research. Though possible, this period includes the registration period in the University. In September, I have applied to read a paper on the organisation and management of transferred technology at the 1992 Work With Display Units Conference in Berlin.

If it is possible and convenient for you, I would prefer that your invitation indicate my first choice (26 March to 4 June 1992) for visa purposes. You can use fax no. (632) 963486 of the College of Social Sciences and Philosophy. May I have your immediate reply so I can have time to arrange about the two-week French Embassy sponsored visit and begin pre-travel preparations?

Your support has been truly very valuable to me. Merci beaucoup!

Sincerely,

*Clarissa*

Department of Sociology, CSSP  
University of the Philippines  
Diliman, Quezon City, Philippines



Paris, le 31 Mars 1992

Monsieur Philippe Seyer  
Attaché Scientifique  
Ambassade de France aux Philippines  
Ministère des Affaires Etrangères  
s.c. du Service de la Valise Diplomatique  
37, Quai d'Orsay  
75007 Paris

Monsieur l'Attaché,

Je vous remercie de votre lettre du 19 Mars, à laquelle j'ai été très sensible. Il existe effectivement des liens importants entre notre laboratoire et l'Université des Philippines, pays dans lequel j'ai eu l'occasion de travailler depuis 16 ans, d'abord comme expert du B.I.T., puis comme Professeur invité à l'Université des Philippines.

En outre, Madame le Professeur Clarissa Rubio a soutenu une thèse remarquable sous ma direction, dans un domaine intermédiaire à celui de la sociologie et de l'ergonomie. C'est la raison pour laquelle j'ai obtenu des fonds pour permettre à Madame Rubio de continuer son effort scientifique en France grâce à des missions. J'étais, moi-même, l'invité de son Département en Octobre dernier.

Je crains que les circonstances ne me permettent pas de financer complètement les voyages futurs de Madame Rubio en France, et mes séjours éventuels. Je serais particulièrement heureux si vous pouviez envisager de nous aider à l'avenir.

Je souhaiterais savoir si vous pensez qu'un accord éventuel entre l'Université des Philippines et le Conservatoire National des Arts et Métiers rendrait cette aide plus facile.

Je vous prie d'agréer, Monsieur l'Attaché, l'expression de mes sentiments les meilleurs.

A. Wisner

Double remis à C. Rubio

**AMBASSADE  
DE  
FRANCE  
AUX PHILIPPINES**  
SERVICE CULTUREL

PS/RC  
No. 225 SCSC

Manille, le 19 mars 1992

Monsieur le Professeur,

Je fais référence à une copie de votre lettre datée du 21 janvier 1992 à l'attention de Madame le Professeur Clarissa RUBIO. Cette copie nous a été adressée le 6 mars 1992 par M. Zeus A. SALAZAR, doyen de l'Université des Philippines de Quezon City.

Le Service culturel, scientifique et de coopération de l'Ambassade de France à Manille se réjouit de constater que les relations professionnelles et amicales entre votre équipe et Mme RUBIO se poursuivent au-delà de la thèse de cette dernière. L'invitation dont il est question est une grande chance pour Mme RUBIO de fortifier les liens qui l'unissent à ses collègues français.

Pour notre plus grand regret, le départ extrêmement rapide (17 mars) de Mme RUBIO ne nous permet pas d'envisager une quelconque contribution financière, que ce soit sous forme de bourse ou d'invitation.


Par contre, nous ne serions que trop vous encourager à accueillir au mieux Mme RUBIO. Un papier émanant de votre autorité et attestant sa collaboration avec un groupe de scientifiques français lui permettrait peut-être de trouver plus facilement un logement à la FIAP.

Nous souhaitons foncièrement encourager ce type d'initiatives et pour cela nous comptons sur votre collaboration étroite en vue d'anticiper davantage les possibilités de coopérations futures.

Veillez agréer, Monsieur le Professeur, l'expression de mes sentiments dévoués.

Professeur Alain WISNER  
Laboratoire d'Ergonomie  
Conservatoire National des Arts  
et Métiers  
CNAM-LENET, 41, rue Gay-Lussac  
75005 PARIS



  
Philippe SEYER  
Attaché scientifique

January 4, 1991

Prof. Alain Wisner  
Ergonomie et Neurophysiologie du Travail  
Conservatoire National des Arts et Metiers  
41, rue Gay-Lussac  
75005 Paris

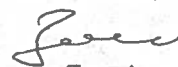
Dear Prof. Wisner,

Thank you for your letter of December 12. I will be assuming the deanship of U.P. Tacloban in the beginning of April of this year, you will be definitely welcome to come and spend a few days there. I am looking forward to what I know will be a challenging and exciting post. When you come, I would be eager to know what your suggestions for and comments on the college might be.

Regarding the copy of my dissertation, I am afraid that it will be difficult for me to send a copy from here, at the moment I have unfortunately run out of copies to give. May I suggest though for you to request the library or documentation section of the CNAM to procure a copy from University Microfilms based in Ann Arbor, Michigan, USA. My dissertation is now in their files and copies can be made from their microfilms. The title is "The Political Conception of Justice: Rawls, Communitarianism, and Rational Conflict-Resolution." I am flattered that you would want to read my dissertation.

I have mentioned your best wishes to Clarissa Rubio and she told me she will be writing (or has already written) soon. In the meantime, please accept my wife's and my best wishes for the new year.

Respectfully,



Zosimo Lee

Department of Philosophy  
University of the Philippines  
Diliman, Quezon City 1101



MINISTÈRE DE L'ÉDUCATION NATIONALE  
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

ERGONOMIE ET NEUROPHYSIOLOGIE DU TRAVAIL

Paris, le 12th December 1990

Professeur Zosimo Lee,  
Department of Philosophy  
University of the Philippines  
Diliman, Quezon City 1101  
Philippines

Dear Professor Lee,

I received with much pleasure your letter of November 28. I am very happy that you have so well succeeded after many years of hard work. I would like very much to receive your thesis dissertation if you can spare a copy to send me.

Another subject of deep satisfaction is that you are now the Dean of the U.P. College in Tacloban. I visited Tacloban more than ten years ~~ago~~ and I was extremely impressed by the originality and the strength that U.P. scholars were demonstrating there.

If, as I wish, I have an opportunity to come back to the Philippines, I would be extremely pleased to spend a few days in Tacloban and understand what other progresses were made since my first visit.

Again I have to congratulate you for the successes met by your wife.

I thank very much Dr. Clarissa Rubio to have suggested to you to give me your good news. Could you to the same with her for I did not hear from her since she left Paris.

I hope to see you soon in Paris.

With my best regards,

Yours sincerely,

Alain WISNER

November 28, 1990

Prof. Alain Wisner  
CNAM  
41, rue Gay Lussac  
Paris 75005

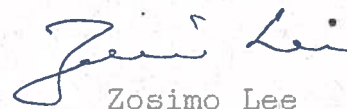
Dear Prof. Wisner,

I met Dr. Clarissa Rubio the other day and she mentioned to me that some time back you were asking about me. I'm sorry I have been remiss in keeping the contact with you. I was myself away from the Philippines since 1987. I finished my doctorate in Philosophy at the State University of New York at Buffalo, and just came back to the country the middle of September this year. I wrote my dissertation on "The Political Conception of Justice: Rawls, Communitarianism, and Rational Conflict-Resolution."

I have slowly settled into my academic duties again. One surprising development has been that Dr. Francisco Nemenzo Jr., the former dean of the College of Arts and Sciences here (now College of Social Sciences and Philosophy) who is now Chancellor of U.P. Visayas, has asked me to become Dean of the U.P. College in Tacloban. I have asked that I only start taking office in April next year. I would have wanted to have become just an ordinary faculty member for a while--immerse myself more in Philosophy, improve my German and my French--but then Nemenzo was rather insistent that I take the job. I come from Tacloban myself and this could be an opportunity to do my share for the region.

Apart from this, my family is doing fine. My wife, Marcy, is the chairperson of the Department of Visual Communication of the U.P. College of Fine Arts, and is herself finishing her master's thesis on the history of the concept of visual communication in the U.P., as well as the history of the department itself. The proposal is to eventually put up a U.P. Design Institute, which can house the departments of advertising and editorial design, traditionally the visual communication disciplines, as well as the industrial design department, and go into more in-depth research in design theory, including the trans-disciplinary dimensions of design. Our two children, a daughter of six, and a son of three, are doing well in school.

Do you, by any chance, have any plans of visiting the Philippines soon? My sincere regards,

  
Zosimo Lee

Department of Philosophy  
University of the Philippines  
Diliman, Quezon City 1101  
Tel. (632) 922-5669 (R)

Paris, le 21 Janvier 1992

Madame le Professeur Clarissa Rubio  
Departement of Sociology, CSSP  
University of the Philippines  
Diliman, Quezon City  
Philippines  
Fax (632) 963486

Chère collègue et amie,

Je suis heureux de vous inviter à venir travailler au sein de notre laboratoire entre le 24 Mars et le 4 Juin 1992, de telle sorte que nous puissions franchir une nouvelle étape de la collaboration qui lie le Département de Sociologie de l'Université des Philippines et le Laboratoire d'Ergonomie du Conservatoire National des Arts et Métiers à Paris.

Comme nous en étions convenus au cours de mon séjour à Diliman, en Octobre dernier, vous pourriez donner deux séminaires dans le cadre de l'enseignement d'anthropotechnologie, conseiller un certain nombre de nos étudiants, réaliser les travaux bibliographiques qui vous sont nécessaires et visiter d'autres unités de recherche françaises en ergonomie et en sociologie.

Je vous confirme le fait que l'Association Naturalia et Biologia a pu mettre à votre disposition une somme de 10.000 francs pour vos frais de voyage et de séjour, ce qui risque d'être insuffisant pour un séjour de 6 semaines.

Les membres du laboratoire et moi-même nous réjouissons de vous revoir à Paris.

Veillez agréer, je vous prie, l'expression de mes sentiments amicaux, et transmettre mes sentiments dévoués à vos collègues de l'Université des Philippines.

Professeur Alain Wisner  
Laboratoire d'Ergonomie du  
C.N.A.M.

Paris, le 21 Janvier 1992

Madame le Professeur Clarissa Rubio  
Departement of Sociology, CSSP  
University of the Philippines  
Diliman, Quezon City  
Philippines  
Fax (632) 963486

Chère Clarissa,

Vous trouverez, ci-joint, la lettre officielle que vous m'avez suggéré de vous adresser par votre fax du 21 Janvier, dont malheureusement certaines phrases sont illisibles. Pourriez-vous m'en envoyer une copie par la poste ?

Pour la même raison, je vous envoie par la poste une copie des deux fax.

Si la lettre officielle doit être modifiée, ne craignez pas de me le faire savoir, en précisant ce que je dois écrire.

Je souhaite que vous donniez deux séminaires aux étudiants d'anthropo-technologie, mais je ne veux pas vous accabler de travail. Si cela est trop lourd, vous pourriez donner un séminaire, et participer sur un autre sujet à une discussion informelle avec les thésards.

Bien amicalement à vous et à votre famille.

A. Wisner

Professor Alain Wisner  
Laboratoire D'Ergonomie  
CNAM 41 Rue Gay Lussac  
Paris 75005 France

21 January 1992

Dear Professor Wisner,

I only received your letter more than a week ago. Please excuse the late reply. Before writing you, I assessed my work load and consulted the Dean and my chairman about scheduling my trip to Paris in relation to our academic calendar.

Thank you very much for your continued support of my modest efforts to contribute to ergonomics here. It has been a constant source of inspiration and encouragement for me. I would very much like to go there before April 15 to attend some seminars in the laboratory. Giving a seminar would also be useful experience and good for my career.

My first preference, therefore, is to go there by 26 March (or the 24th, if possible, depending on flight schedules). With limited time and pre-travel arrangements to make, I cannot write a good paper to distribute there but I could base the seminar on my papers on: (a) Improving the quality of work: sociology as a complementary discipline to ergonomics and (b) Toward a successful technology transfer (TT) to industrialising countries: some sociological considerations for ergonomists. I could bring a draft and send the final paper later.

Based on my thesis and the present Philippine situation, I could elaborate on inputs to an approach to study TT (e.g. sociological methodologies, social and industrial tissue, research constraints, the importance of organisation and culture, etc.). The seminar would be an occasion for me to present ideas for a draft paper for my PNOG Professorial Chair Award from the University and for which I am to write a paper by June 1992. I hope to include additional ideas and perspectives gleaned two years after my thesis. Would these be acceptable to you?

I plan to use my vacation leave and have a longer time to do careful bibliographic research on english and french books and other references material there. Financially, this will be possible as my uncle will most probably still be there and I could stay with them.



Dean Salazar will also try to arrange with the French Embassy a two-week visit for me meet and discuss with sociologists and ergonomists in France during my stay. Could you suggest universities I could visit and researchers I could meet which I will propose to the Embassy here?

A second alternative would be for me to go to Paris on 27 April to 30 June. By this time, classes there would be over and accommodations could be a problem because my uncle would probably move away from Paris already. Financial constraints will limit my time to stay there and do bibliographic research. Though possible, this period includes the registration period in the University. In September, I have applied to read a paper on the organisation and management of transferred technology at the 1992 Work With Display Units Conference in Berlin.

If it is possible and convenient for you, I would prefer that your invitation indicate my first choice (26 March to 4 June 1992) for visa purposes. You can use fax no. (632) 963486 of the College of Social Sciences and Philosophy. May I have your immediate reply so I can have time to arrange about the two-week French Embassy sponsored visit and begin pre-travel preparations?

Your support has been truly very valuable to me. Merci beaucoup!

Sincerely,

*Clarissa*

Department of Sociology, CSEP  
University of the Philippines  
Diliman, Quezon City, Philippines

Paris, le 17 Décembre 1991

Madame Clarissa Rubio  
137 Valenzuela St Area 2  
UP Campus  
Dilima Quezon City  
Philippines

Chère amie,

Je veux d'abord vous remercier de l'accueil si amical et attentif qui a été le vôtre lors du séjour trop bref que j'ai fait, en Octobre, aux Philippines. J'ai été très ému de retrouver votre pays après 7 ans, et surtout de constater les grandes difficultés dans lesquelles vivent les Philippins.

J'ai toujours l'intention de venir en Asie du Sud Est du 15 Octobre au 30 Novembre 1992, mais je ne sais pas encore quels besoins seront exprimés ou confirmés aux Philippines, en Thaïlande, et peut-être au Vietnam.

De toute façon, nous aurons l'occasion d'en discuter car j'ai appris que NEB vous avait attribué une bourse de 10.000 francs pour le travail bibliographique que vous souhaitez réaliser à Paris en 1992. J'espère que cette somme vous suffira car je ne suis, malheureusement, plus en état de dégager d'autres moyens financiers.

J'espère qu'à cette occasion, il vous sera possible de faire une ou deux conférences au cours du séminaire d'anthropotechnologie qui réunit, comme chaque année, une vingtaine de personnes intéressantes et diverses.

Je serais heureux de savoir le plus tôt possible quand vous pensez venir en France. Je serai au Brésil du 15 Avril au 31 Mai, et en vacances du début Juillet à la mi-Août.

Pour vivre de façon active au laboratoire, et pour enseigner aux séminaires, le mieux serait pour vous de séjourner à Paris avant le 15 Avril, mais peut-être est-ce un délai trop court, et faudrait-il mieux pour vous de venir soit en Juin, soit en Septembre. La bourse doit être utilisée en 1992.

Je vous adresse toutes mes amitiés et celles de mon épouse qui a été profondément émue par l'image de la Vierge faite des cendres du Pinnatubo.

Bon Noël, et bonne année !

A. Wisner

3 Septembre 1991

Madame Clarissa Rubio  
137 Valenzuela St Area 2  
UP Campus  
Dilima Quezon City  
Philippines

Chère Clarissa,

Après 5 semaines de vacances qui m'étaient bien nécessaires, je reprends mes projets et en particulier celui que nous avons formé de ma prochaine visite aux Philippines.

Je suis heureux de vous confirmer que j'arriverai à Manille le dimanche 20 Octobre à 2h. 35 pm. par le vol TG 620. Je repartirai à Bangkok le vendredi 1er Novembre à 7h. 40 pm. par le vol TG 625. J'aurais préféré arriver un ou deux jours plus tôt, et repartir un ou deux jours plus tard, mais, selon "Nouvelles Frontières", il n'y avait plus que ces vols-là qui soient disponibles.

J'accepte volontiers votre proposition de séjourner à l'hôtel situé sur le Campus de l'U.P. de Dilima. Je serais heureux que vous puissiez m'y réserver une chambre pour 12 nuits.

J'aimerais aussi recevoir, le plus rapidement possible, le nom exact, l'adresse, le téléphone, et si possible, le fax de cet hôtel, de façon à l'inscrire sur mon plan de voyage.

Je suis extrêmement heureux de revoir votre pays où je n'ai pas été depuis la chute du Président Marcos, de retrouver mes anciens amis, et surtout d'avoir le temps de discussions approfondies avec vous.

Je ne suis absolument pas hostile aux conférences publiques et aux cours, mais je préférerais de beaucoup des entretiens avec des chercheurs isolés ou avec des groupes de chercheurs. L'essentiel est toutefois que je sois employé de la façon la plus utile possible.

Je vous demande instamment de ne pas vous préoccuper des questions financières : je n'ai pas de problèmes à ce propos.

Veillez me faire savoir si vous-même ou vos collègues auriez besoin que j'apporte quelques objets ou documents aux Philippines.

A bientôt donc et bien amicalement.

A. Wisner

3 July 1991

Dear Prof. Wisner

I received your letter informing me of the travel grant & living expenses - assistance last Friday, 28 June. I am processing my travel papers now to go to Paris by next week.

I am very grateful & very touched that you took the time & trouble to get me a grant to be able to attend the IET Congress. I really appreciate the opportunity to have the exposure to international experts in ergonomics.

It is an unexpected occasion for me to update myself on current developments in ergonomics.

I have applied to read a paper in Bangkok & have asked Dr Wongphanich if she could suggest possible funding sources.

When I return to Manila in August, I also hope to inquire about institutions giving grants for foreign travel to attend conferences in other countries.

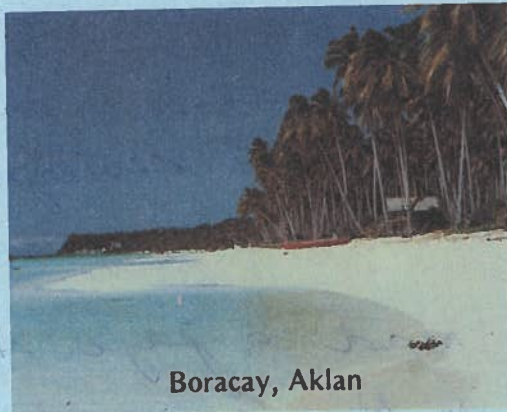
Again, I thank you for your continuing support. It has been an important source of encouragement for me all these years.

AIR LETTER  
AEROGRAMME  
PANGHIMPAPAWID



M. ALAIN WISNER  
LABORATOIRE D'ERGONOMIE  
CNAM  
41 RUE GAY LUSSAC  
PARIS 75005  
FRANCE

SECOND FOLD HERE



Boracay, Aklan

Sender's name and address:

CRUBIO  
DEPT. OF SOCIOLOGY CSSP  
UNIV. OF THE PHILIPPINES  
DILIMAN, QC  
PHILIPPINES

FIRST FOLD HERE

October 15 November is a great time to  
come to Manila. However, I hope to call  
to attend the SEAB Conference end of November.  
So any time before or after this period will  
be fine from for you to come to Manila &  
see what has been happening concerning  
the discipline of ergonomics.  
My warmest personal regards - Alain  
Sincerely,

claus post

14 Mai 1991

Madame Clarissa Rubio  
University of the Philippines  
System  
137 Valenzuela St Area 2  
UP Campus  
Dilima Q.C. Philippines  
Quezon City

Chère Clarissa,

Vous m'avez écrit une longue lettre en Janvier dernier, ce qui m'a fait un grand plaisir.

J'ai retardé sans arrêt ma réponse car j'espérais pouvoir vous faire des propositions précises pour une rencontre cette année. En effet, je serai en Asie du Sud-Est du 15 Octobre au 30 Novembre, en particulier pour participer à la troisième conférence sur la santé au travail et à la troisième conférence de la SEAES, qui auront lieu ensemble du 25 au 27 Novembre à Bangkok.

Je dois également donner une série d'enseignements à l'Université de Chula-Longkorn, dans le département de Kitti Intaranont.

Si je n'ai pas d'autres engagements, j'aimerais bien aller passer une semaine à Manille pour vous voir, mieux connaître l'ergonomie philippine, et aussi reprendre contact avec votre pays que j'aime et où je ne suis pas retourné depuis la chute du Président Marcos.

Malheureusement, je suis engagé, depuis plus d'un an, dans la négociation d'un contrat avec la RATP dont une partie de l'étude devrait se faire à Taïpei. Si ce contrat finit par être conclu, je devrais aller à Taïpei ainsi qu'à Hongkong et à Singapour avec un jeune chercheur français - principal chercheur de ce contrat - et je n'aurai pas le temps d'aller à Manille.

Je voudrais savoir si cette période du 15 Octobre au 30 Novembre peut éventuellement vous convenir, et je vous informerai de ma disponibilité dès que j'aurai une réponse définitive pour le contrat RATP.

Comme vous le savez sans doute, ma situation au laboratoire va changer d'ici quelques semaines, puisque Monsieur Pierre Falzon va me succéder. Je resterai cependant professeur au CNAM et membre de ce laboratoire jusqu'au 30 Septembre 1993, si ma santé me le permet.

Comme vous le savez peut-être également, Antoine Laville dirige l'ancien laboratoire du Professeur Leplat. Bernard Pavard, Professeur à Paris VIII, développe toujours ses recherches au sein de notre laboratoire, mais il va peut-être être nommé Directeur d'un laboratoire CNRS à Toulouse. Enfin, Jacques Theureau va peut-être succéder au Professeur de Montmollin à Paris XIII, en Octobre prochain.

Je comprends facilement votre extrême fatigue à votre retour aux Philippines; il est tout à fait normal de passer par une période de dépression d'un an après la soutenance de thèse; cela est d'autant plus normal étant donné l'énorme effort que vous avez consenti par votre remarquable travail.

Je suis très heureux que vous ayez un poste qui vous convient tout à fait : celui de l'orientation de jeunes chercheurs du département de sociologie.

Je vous adresse, sous un autre pli, deux documents que j'ai préparés récemment : l'un contient l'ensemble des articles que j'ai écrits en anglais depuis dix ans, et l'autre en deux volumes, un recueil d'articles portant sur l'anthropologie et la psychologie cognitive qui sont pour moi le coeur des problèmes de transfert de technologie.

Vous trouverez également dans le même paquet, un programme du Congrès International d'Ergonomie où nous attendons plus de 1000 participants auxquels nous remettrons 2800 pages de rapports et de communications.

Je tente de vous obtenir une bourse de voyage pour venir au Congrès. Si je l'obtiens, vous serez également dispensée des frais d'inscription. Pourriez-vous me répondre très rapidement (par télégramme) pour me faire savoir si vous continuez à souhaiter venir à Paris en Juillet.

Recevez toutes mes amitiés et mes félicitations pour l'oeuvre nouvelle que vous entreprenez aux Philippines.

Bien amicalement.

A. Wisner

Clarissa Rubio, Dept of Sociology, CSSP  
UNIVERSITY OF THE PHILIPPINES SYSTEM  
QUEZON CITY  
OFFICIAL MAIL

Professor Alain Wisner  
Laboratoire D'Ergonomie  
CNAM  
41 Rue Gay Lussac  
Paris, 75005  
FRANCE

PILIPINAS P550



PASKUHAN VILLAGE  
Safi Fernando, Pampanga  
1900  
Pasko 90



VIA AIR MAIL



2 January 1991

Dear Professor Wisner,

Please accept my apologies for not writing to you sooner. It was only upon my return that I felt my physical and mental fatigue after the pressure of work in Paris. My first few months were spent getting back into the mainstream here.

I also tried to familiarise myself with the academic and administrative changes in the University and our own college. This was not easy because I returned to find our college in a very serious crisis then.

I have been given the task of coordinating our Phd program and, we have been reviewing our MA and Phd changes to be made so they would be more

*Apologize for delay but  
uncertainty about my time  
rechedule  
when happen in the lab  
What it will happen next  
autumn.*

*Not get me to be able to  
go to Philippines (metric) if you  
a week to prepare 92 and 93*

*Fatigue problems is normal  
- Good you re-orientate yourselves  
- Send two publications in english  
please ask for news books. I will  
send if I can*

*If you go to Sweden, I will try  
to pay your travel from  
Sweden to Paris*

*Conyuan is it a good  
occasion to travel?*

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studies on the subject.

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91 is a better time for you to come here  
Asia. Ms Helen Custodio, the director  
o meet you and have her staff learn from  
rm her when you are coming.

n touch with Prof Shahnavaaz about his  
or a month at his Center in Lulea.

I certainly would be very interested in attending the IEA Congress but I have not received any information or invitation about it. For me, attending such conferences will be possible only if travel funds can be acquired from outside sources. So I doubt if I can go.

I am sorry. My understanding from you when I left was that my thesis did not have to be revised.

Kindly extend my New Year greetings to the laboratory staff. Though I had not written before, my thoughts were often about my very fruitful stay there and the support you all gave me.

My warmest regards to you and your family.

Sincerely Yours,  
Clarissa

2 January 1991

Dear Professor Wisner,

Please accept my apologies for not writing to you sooner. It was only upon my return that I felt my physical and mental fatigue after the pressure of work in Paris. My first few months were spent getting back into the mainstream here.

I also tried to familiarise myself with the academic and administrative changes in the University and our own college. This was not easy because I returned to find our college in a very serious crisis then.

I have been given the task of coordinating our Phd program in Sociology. Since my return, we have been reviewing our MA and Phd programs in preparation for changes to be made so they would be more responsive to Philippine needs.

For two consecutive semesters, I have been teaching a seminar which I have entitled, 'Man, Work and Technology. Here, I teach the sociology and ergonomics of technology transfer. The response of the few MA and Phd students who have taken this course have been enthusiastic and they find the course/ approach novel and different. Last semester, a Phd student attending the seminar who is also a faculty member of UP Los Baños, Department of Agricultural Education mentioned the usefulness of her offering a similar course there.

During your visit here, I will show you the papers written by my students in this course. Eventually, I hope to offer a more structured course. At present I am hampered by the lack of books and reference material e.g. case studies on the subject.

The past year, I tried to find out what is being done in ergonomics and its related fields in the country and in UP. Last November, I attended the 1st National Conference on Occupational Health and Safety. This was organised by the two-year old Occupational Health and Safety Center established under Japanese funding and sponsorship. There I met Prof. Lina Somera and Dr. Reverente. In that conference attended by people from different sectors, I was glad to see the term ergonomics mentioned countless times.

I think perhaps 1991 is a better time for you to come here as you will be in Southeast Asia. Ms Helen Custodio, the director of the Center is interested to meet you and have her staff learn from you. She has asked me to inform her when you are coming.

I have also been in touch with Prof Shahnavaaz about his invitation for me to teach for a month at his Center in Lulea.

I certainly would be very interested in attending the IEA Congress but I have not received any information or invitation about it. For me, attending such conferences will be possible only if travel funds can be acquired from outside sources. So I doubt if I can go.

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My warmest regards to you and your family.

Sincerely Yours,  
Clarissa



MINISTÈRE DE L'ÉDUCATION NATIONALE  
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

ERGONOMIE ET NEUROPHYSIOLOGIE DU TRAVAIL

Paris, le 14th December 1990

Prof. Clarissa Rubio  
137 Valenzuela Street, Area 2  
UP Campus  
DILIMAN, QC  
Philippines

Dear Clarissa,

I was very happy to receive two letters from the Philippines this week, one from Zozimo LEE who seems very well and the other from you to my wife and myself.

May I combine my thanks with the expression of a little deception? I would have enjoyed to know more about what happened to you since you came back to the Philippines. How are you? How is your family? What type of professional activity do you have? How far do you think that Ergonomics can be developed in your country?

Do you think it would be reasonable to visit the Philippines again either in 91 or in 92? Even if the situation is not so good, I feel a great desire to see your country again as I did not visit it since Marcos era.

I am not the only one to expect news from you. The Laboratory and my family are also eager to know more about you. The laboratory is still in a transitory period as we are still expecting a new Director to be appointed, may be at the end of next term. Professeur Laville is very successful at the head of the EPHE Laboratory and he will be the leader of Ergonomics DEA and Doctorate from October 1991

The preparation for the IEA Congress is going well. We expected to receive 300 to 400 abstracts, and we received 850! I expect your presence though I have not yet seen your name on the list of attendees.

After July 91, I will devote my time to anthropotechnology both in South East Asia and Brazil. I will be in Thailand and may be in Taiwan in October/November 91.

With my best wishes for a merry Christmas and a very happy New Year to you and your family.

Best regards,

Yours sincerely,

Alain Wisner

N.B. We have not yet received the corrections of your thesis which would allow us to reprint the copies subsidised by NEB.