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ABSTRACT

The Uppsala International Seminar in Physics assists universities in developing countries in their endeavors to provide a useful and solid training of scientists at all levels (secondary, undergraduate, and postgraduate), to promote basic and applied research within the field of physics, and to demonstrate the fruitfulness of international and regional cooperation and communication. These objectives are met by providing assistance in three forms; fellowships to members of the Swedish research teams, complimentary equipment to supported research teams, the expert advice by able research leaders who make "expert missions" to the nation from which the Fellows have come. The assistance is designed for institutions, not individuals, in the developing countries. By training scientists to cultivate the research needs and priorities of their own localities and by maintaining educational and personal ties between scholars after the ten-week seminar, the program is engaged in dialogical communication instead of the traditional monological approach between the modernized country and the developing country. (EE)

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A SWEDISH APPROACH TO INTERNATIONAL COMMUNICATION

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## A SWEDISH APPROACH TO INTERNATIONAL COMMUNICATION

One of the inevitable problem areas in the field of international communication is that involving the developing countries. We have, of course, two levels of communication in this area-- the problems of communication within the developing countries themselves, such as information diffusion, establishing and transmitting national goals and priorities, control and mobilization for nation building, and then the problems of communication between the countries who are able and willing to assist and the countries who are recipients. I wish to focus on this latter level. For too long the industrialized nations aided the so-called underdeveloped countries in an exploiting or at best a patronizing manner. From a communicative point of view it was monological--one directional with little regard for the perceived needs and priorities of the recipients. Americans went abroad with their material, their technical assistance, and their experts to train the nationals according to the research development problems as Americans saw them and as they thought they should be seen. Such an inadequate conceptualization of the communicative dimensions of the relationships has resulted in much harm and damage both from the standpoint of international relations but more importantly from the standpoint of the best interests of the developing countries. A Swedish program that has been functioning in Uppsala for twelve years deserves particular attention because of its approach to the communicative dimensions of this international problem in communication and development.

The International Seminar in Physics at the University of Uppsala, begun in 1961 under the leadership of Dr. Tor Ragnar Gerholm

and Professor Kai Siegbahn, and presently under the direction of Professor Olov Bergman, approached this problem by training scientists from developing countries, but giving particular attention to the conceptual and methodological aspects of communication. The purpose of this paper is to describe this international seminar by highlighting its (1) motivation, its (2) objectives, and the (3) communicative environment in which these objectives are fulfilled.<sup>1</sup> The functioning of the seminar, as I shall point out, serves as a constructive model for what I view as a properly conceived effort at international communication.

Before coming to these aspects, perhaps a brief description would be helpful. The International Seminar in Physics is financed by the Swedish International Development Authority, the International Atomic Energy Agency, UNESCO, and the University of Uppsala. It consists of a ten-month training program in experimental research fields such as low energy physics, atomic and molecular physics, solid state physics, x-ray crystallography, radiation and plasma physics, geophysics, etc. The Seminar awards scholarships to applicants from selected developing countries who are attached to a local university or research institute. Normally the Fellow will already have the M.Sc. or Ph.D. degree and a year of local research experience. The Seminar does not have associated with it any examination or degree. In fact it is not permitted for the research completed in the Seminar to be counted toward a higher degree. Countries which are industrialized or which have institutes of high reputation are not on the eligible list. During the current year there are participants from Indonesia, India, Poland, Cuba, Romania, Egypt, Colombia, Zambia, Nigeria, Chile, Uruguay,

Nepal, Kenya, Iraq, Ceylon, and Thailand. The total number of fellows is limited to about 25 because much stress is placed upon the personal development of these scholars and upon the interpersonal relationships of the participants and their appointed research leaders.

#### MOTIVATION

The motivation behind the Seminar is three-fold. First there is the brain drain problem in many of the developing countries. The local country loses some of its best students and potential researchers because of their being attracted to scholarships at prestigious universities in highly industrialized countries or to teaching and research positions elsewhere. When the training they obtain turns out to be irrelevant to the needs of their own country, they never return. At Uppsala the research training is required to be relevant to the local needs and the scholars must return to their home institutions.

A second motivation behind the Seminar is the problem of isolation for the researchers at their local institutions. The universities concerned generally have only small departments where the staff is few in number and the exchange of ideas is limited and the opportunity for cross-fertilization is small. Geographically, the department or research institute is isolated also, making it difficult for scholars to have professional external contacts. Not only does spending 10 months at the Uppsala institute help a scholar and his department in this respect, but one of the important aspects of the Seminar is that the professional ties are maintained after the Seminar experience.

A third motivation is the problem of staffing the local departments. Financial problems at these small institutions make it virtually impossible for long-range planning and research needs to be established. Rapid turnover of staff contributes to the problem.

There are many expensive sets of equipment standing unpacked or otherwise unused in universities of developing countries simply because the man for whom things were ordered left for a job or perhaps a scholarship and then never returned. This turnover in staff, repeatedly getting in new people with new fields of research each making fresh plans for starting new groups is also quite detrimental to local higher degree programmes.<sup>2</sup>

By requiring that scholarship recipients be firmly attached to their local institutions, that the training at Uppsala is not for degree purposes, that the research projects are in fulfillment of departmental goals and plans at the local institution, the Seminar is able to mitigate some of the common problems encountered otherwise. The Seminar staff obtains as much information as possible about the local situation and the application form includes questions as to why the applicant is doing the research, what instrumentation is available, who the people are with whom he is working, and what type of training is wanted. Thus the training in Sweden is selected carefully and integrated as much as possible into the research plans and departmental goals locally. Scholarships are not awarded freely according to the desires of the individual, but are based on need as it exists in the local university. The training is not to change scholars into preconceived molds but to awaken them to see what their own research needs and priorities are in their own countries. In this way the universities of the local countries are able to contribute in a relevant way to their development program.

### OBJECTIVES

The above philosophical and practical motivation provides the framework in which the specific objectives of the Seminar are set. To quote Dr. Bergman, "The purpose of the International Seminar in Physics is to assist Universities in developing countries in their endeavours to provide a good and fruitful training of scientists at all levels (secondary, undergraduate and postgraduate), to promote basic and applied research within the field of physics, and to demonstrate the fruitfulness of international and regional cooperation."<sup>3</sup> These aims are met by providing assistance in three forms: the fellowships to scholars who enter as members of the Swedish research teams at Uppsala, complementary equipment to the supported research team, and expert advice by able research leaders who make what are termed "expert missions" to the local country, from where the Fellows have come. It is significant that the assistance is designed for institutions, not individuals, in the developing countries. In this way it differs from the usual pattern of supporting individual scholars who receive scholarships and pursue individual research interests on their own. Because of the nature of the Seminar which emphasizes knowing the local conditions of the Fellows, the expert upon visiting the institute is already acquainted with the department needs, the staff, the equipment, and the research problems. This facilitates considerably his visit as an expert. The mutual cooperation, with emphasis on adapting to the recipient's conditions, is the important feature of the Seminar's goals.

### COMMUNICATIVE ENVIRONMENT<sup>4</sup>

We have now looked at the motivation behind the Uppsala Seminar and at its specific objectives. Finally, we should note what I call

the communication environment which the Seminar provides for the scholars. This communicative environment first of all, consists of the attitudes of the Uppsala staff<sup>5</sup> toward the seminar program, toward the Fellows who train there, and toward the research. The attitudes are open and cooperative, not authoritarian and dogmatic. The staff is concerned about the process of training as much as it is about the research skills resulting from the training. Pervasive throughout the Seminar is the overriding impulse of respect for local needs and priorities in research. The approach is development oriented, in the truest sense of the word. The staff is there to help the scientists create their own picture of what they may become as researchers in their own countries. This is essentially a creative communicative attitude rather than a traditionally closed attitude of information transmission.

Another important aspect of the environment is the arrangement of the physical facilities.<sup>6</sup> Each Fellow is appointed to a small research group with a senior research leader who guides the group in its problem-solving and research training. The emphasis is on the group, not on the individual researcher doing his own thing. The research training takes place in its own facility where in addition to the laboratories the Seminar participants have a common library, reading room, a common kitchen and adjoining dining room where they eat together and have opportunity for sharing and interacting. The sharing of problems and the building of a common life are thus an important part of the program. The entire group studies the Swedish language and culture together,<sup>7</sup> they take a trip through Europe together to obtain a picture of important research centers there, they have a series of study visits and laboratory information about teaching and administering physics



programs in Sweden.<sup>8</sup> A series of what are called "fellow-evenings" is offered in which the Fellows have opportunity to share information about their home country, its economic and social structure and its education problems and priorities. These parties also feature the food of the country being discussed and generally "lead to natural and open discussions in the wide international field that the Seminar represents."

A third element in the environment is the close personal and professional relationships that are established between Fellows and leaders which continue even after the training period is over. As long as five years after a Fellow leaves the Seminar, correspondence continues between him and his leader. This includes the sharing of professional help which may be as frequent as once a month. The "expert missions" described earlier play an important part in the follow-up relationships, as well. It would be even more desirable if the program could financially support the coming back to Sweden of experts and scientists from the supported country. The need for experts to go to the developing country is assumed, but the need for the latter to come to the industrial nation on an expert basis is seldom acknowledged. The networks of communication enlarge each year as the Seminar brings in new Fellows and lets them return home to continue their research.<sup>9</sup> Dr. Bergman concludes:

Long standing links between physics groups in Uppsala and University departments in developing countries may thus be built up by the Seminar. The dominating factor in this process is of course the people involved. The Sweden research group must be of sufficient quality and strength to be able to provide useful training and sufficiently extrospective to show interest in other people's problems - and all groups are not ideal in that respect. The department in the receiving country must be united enough to put forward definite and realistic plans and should choose its candidates for the Seminar with great care so the candidate fits into

the research and training activities of the department. It is our general impression that the bottle neck in all this is the individuals' ignorance of each others problems and possibilities.<sup>10</sup>

The Seminar attempts to open up the bottle neck by removing the ignorance.

A final element in the communicative environment provided by the Seminar is its effort at obtaining systematic feedback. There is an annual conference of the research team leaders in which the problems and outcomes of the Seminar are discussed and evaluated. There is also an evaluation made by the financing authorities who come to the campus to talk to the Fellows and request reactions and suggestions. Also the Director speaks with each Fellow individually to get feedback. And there is a conference on research within developing countries in the Spring when the group goes out of town together at a convenient location to allow the Fellows to give talks about the problems in their research, in their education, and in their countries. In this way the Seminar staff can get a feel for the work that can be done in the supported countries. In addition to the regular and annual evaluation that goes on, in 1969 a follow-up study was conducted to determine whether indeed these Fellows through the years were remaining in their research fields and institutions. The study concluded that only 6 out of 158 Fellows had "jumped off," so to speak. However, of these 6, three were political refugees and one had a mental breakdown.<sup>11</sup>

#### CONCLUSION

The Uppsala International Seminar in Physics is helping the universities in the developing countries play a central role in their development program. By training scientists to cultivate their own research needs and priorities and by maintaining scientific, educational and personal ties between the institutes and its

own program, the Seminar may be said to be engaged in dialogical communication instead of what is too frequently the traditional monological approach between the modernized country and the developing country.<sup>12</sup> In its motivation, in its objectives, and in its program as evidenced by the environment in which it functions, the Uppsala Seminar provides a model of international cooperation and communication.<sup>13</sup> This is an example of what Daniel Lerner would call "participant" development. He emphasizes the necessity of the transformation of individual behavior if social institutions are to be transformed in the developing countries. He well could have been speaking of the International Seminar in Physics at Uppsala when he said,

We now recognize that the literal "transfer" of institutions from one society to another is impossible in most cases and undesirable in virtually all cases. What is required is a "transformation" of institutions in transit between countries. The essential difference is that, in such transformation, the less developed nation is not merely a passive "receiving area" but is the active agent of a constructive and even creative process . . . .

The process of international development cooperation, thus conceived, is essentially a communication process. . . .

This is international communication on the highest level. . . .<sup>14</sup>

## NOTES

<sup>1</sup>The information in this paper was obtained from a personal interview and visit with Professor Bergman, Director of the Seminar in Uppsala, October 19, 1972, while I was on appointment as Visiting Professor for the first semester, 1972-73, in the Department of Communication Sciences, University of Louvain (KUL), Belgium. The visit to Uppsala and Stockholm was sponsored by Dr. Raga Elim, Director-General of the Universities and the Quest for Peace, Kent State University, Ohio. Professor Bergman supplied copies of an illustrated flyer entitled "International Seminar in Physics and Chemistry, University of Uppsala, Sweden," and a mimeographed 12 page description entitled "The International Seminar in Physics, Uppsala, Sweden," dated May, 1970 by Dr. O. Bergman from which the selected quotations in this paper are taken.

<sup>2</sup>Dr. Olov Bergman, "The International Seminar in Physics, Uppsala, Sweden," mimeographed paper, 1970, pp. 2-3.

<sup>3</sup>Bergman, p. 3.

<sup>4</sup>The term "Communication Environment" is my term for what I perceive to be an essential component of the Seminar. It is an abstraction of various elements as described in Dr. Bergman's pamphlet under sections called "Aims and Means," and "Programmes," and in his oral conversation. I took written notes during his conversation with us.

<sup>5</sup>The administrative staff of the Seminar this year (1972-73) consists of five members. In addition to the Director is an assistant director, a scientific assistant, and two secretaries, one of whom serves as "fellowship-manager." "The maintenance of close personal relations with all participants is regarded to be most important." Bergman, p. 10.

<sup>6</sup>One of the reasons the group of participants is kept relatively small is that the staff wishes to keep the facilities together in one location for the facilitation of community life.

<sup>7</sup>Since the language of the Seminar is English, a knowledge of the Swedish language is not needed for the Seminar courses, but for other reasons it is useful for participants to know some Swedish.

<sup>8</sup>A basic course in the use of computer facilities and programming is also included.

<sup>9</sup>In fact one of the functions of the Seminar in promoting research is to discuss and plan a research project to be taken up by the participant when he returns home.

<sup>10</sup>Bergman, pp. 5-6.

<sup>11</sup>No written report of this study was provided. This information was from the interview.

<sup>12</sup>By dialogical communication, of course, I mean that which in method and in spirit encourages interaction and a two-way process of shared meaning as opposed to monological which is only one-way with little or no concern by the sender for the conditions and attitudes of the recipient.

<sup>13</sup>I think there are implications in the Uppsala model for what Davis Bobrow is talking about in his chapter "Transfer of Meaning Across National Boundaries," in Richard L. Merritt (ed.) Communication in International Politics (Urbana: University of Illinois Press, 1972), pp. 33-61. See specifically his claim that "we need models not of international relations but of structures and processes which result in different degrees of something, such as violence, equity, arms procurement, or adaptation." (pp. 55-56) Though the Uppsala Seminar is at the educational and scientific level rather than at the political level, it seems to me that it is a "process" which results in "different degrees" of "adoption" for the participants as well as the educational institutions they represent. In this sense, it could be illustrative of "the changing orientation" Bobrow wants to see.

<sup>14</sup>Daniel Lerner, "International Cooperation and Communication in National Development," in Daniel Lerner and Wilbur Schramm (eds.) Communication and Change in the Developing Countries (Honolulu: East-West Center Press, 1967), pp. 119-120. See the entire chapter.