

# Learning German to Actively Participate in Scientific Research Work in the German Speaking Parts of the World: A Deeply Enriching Experience

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## Abstract

This paper is based on the experience of its author who went to Germany to conduct research work in the area of fluid dynamics, a branch of science/engineering that deals with fluid motion, e.g. of air (wind, smoke), water (in rivers, oceans), oil, blood, or glacier. The research work in Germany was funded through a scholarship awarded to the author by the organization DAAD (Deutscher Akademischer Austauschdienst - German Academic Exchange Service). The scholarship included a four-month German language course at the Goethe Institut. This paper summarizes the author's experiences at learning and using German, both at the Goethe Institute and thereafter.

## Introduction and Initiation into the German Language

In the late fifties of the last century, when the author was on the verge of completing his first degree in engineering (B. E.), he was, as many of his fellow-students were, and students in that stage possibly are even today, in a frame of mind to chart out a course for himself that he wished to pursue in his profession. Viewing them primarily from this angle, the author was on the lookout for engineering disciplines that held a promise of meeting his expectations from several perspectives. One of these was a close coupling between the profession as practiced and one or more of the subjects the author had gained familiarity with through the curriculum prescribed for the basic engineering degree. At this point, a visitor's lecture in the broad area of aeroplane flight, organized by the local Mechanical Engineering Student Chapter, captured his imagination. The lecture was mainly instrumental in kindling within him a keen interest in engineering subjects related to aeroplanes.

The author soon discovered that the curriculum of the basic engineering degree was not an adequate preparation for practice of a profession belonging to this field, making it more or less mandatory for an aspirant to pursue further studies in subjects more closely related to aeroplane flight. The author then sought admission to the Indian Institute of Science in Bengaluru, India, which was offering Post-Graduate Diplomas (D.I.I.Sc). He found admission to a department dealing with aero-engines, an area he was fascinated with. The Indian Institute of Science, at that time, required aspirants of D.I.I.Sc. to pass a test in Modern European Languages; French and German were the languages in which

courses were offered. The author opted for German, and this was his initiation into the world of this language.

After passing out of the Indian Institute of Science with a D.I.I.Sc., which had been by then converted into a degree of Master of Engineering, M.E., the author, who was keen on pursuing research, sought a position advertised by the then newly founded Gas-Turbine Research Centre, GTRC, which, to him, held the promise of his being engaged in research in the field of aero-engines. He was selected as a Junior Scientific Officer. He accepted the post, and was a member of a small team entrusted with the task of performing engineering calculations and preparing engineering drawings, both being steps necessary in the design process of a jet engine.

In the course of his work at GTRC the author came to appreciate the importance of scientifically well-founded knowledge in the fundamentals of fluid motion in order to perform tasks necessary for satisfactory engineering design of a jet-engine. Acquiring this knowledge was not straightforward. It needed undertaking more advanced studies involving research, which called for the author to consider going abroad for such studies. The author was confronted with the dual problem of getting admission into an educational institution engaged in research in an area relevant to aeroplanes and/or aero-engines, combined with finding sources of financial support for such studies. The two, put together, appeared an insurmountable hurdle at that time, when a senior and much-experienced colleague showed a possible way out.

This colleague, who had become a kind of a mentor for the author and had combined advanced study in the U.S.A. with research in a German-speaking country, encouraged the author to explore possibilities for advanced study and

research in countries outside the English-speaking world. In light of the author's experience until then, with many vain searches for financially supported openings for advanced study/research, the author decided to intensify his efforts to include countries outside the English-speaking world. He was much encouraged by the words of his mentor, who expressed his own experience by saying "it (doing research work in a German speaking part of the world) was an enriching experience." An important point the mentor made in his advice was that there were far-reaching contributions coming from researchers working in the German speaking parts of world, many of which have indeed been recognized to be of pivotal scientific significance even today. The mentor said, "It speaks for a good researcher not to overlook these contributions."

## The Language Course at a School of the Goethe Institut

During the second year of his employment at GTRC, when the author was putting in intensified efforts to find funding sources for advanced studies with research abroad, there appeared in the newspapers an advertisement offering scholarships to be granted by the German Academic Exchange Service, Deutscher Akademischer Austauschdienst, DAAD, for advanced studies and research in various disciplines in the then Federal Republic of Germany (West Germany). The author applied for this scholarship and, after an interview, was selected for one. The DAAD-scholarship included a boat passage from India to Europe, and a four-month language course of the Goethe Institut.

Both the DAAD and the Goethe Institut are supported by the Federal Republic of Germany, and their objectives and scope are defined through their statutes. Since these are known and widely publicized on their websites, it suffices here to recall that the Goethe Institut runs language schools for learning German in many parts of Germany and also in other parts of the world. The batch of DAAD-Scholarship-holders from India, including the author, set sail by boat to Europe in the second week of June 1961. The entire batch of scholarship-holders disembarked in Marseilles, from where, after an overnight stay, they proceeded to Germany by train. En route, in Frankfurt am Main, the scholarship group was divided into two sub-groups, with one sub-group proceeding to the German-Language school run by the Goethe Institut in Iserlohn, and the other to the school run in Arolsen. The author was in the sub-group sent to Arolsen. When it arrived in Arolsen, they were met at the railway station by the Director of the Goethe Institut German Language School in Arolsen, who had made lodging arrangements for the scholarship holders for the duration of the language course.

As was customary in Germany those days, the students were lodged in individual rooms in apartments in which families lived, and rented out rooms for students of the local Goethe Institut German Language School. The German language course started a few days after the group's arrival. Before it formally started, the students were given a short test to assess their proficiency level in the German language; some of the students had after all undergone a course in German before they came to Germany. With the background of the course in German language that the author had taken for his M.E. at IISc, he was assigned to the *Grundstufe* (Basic course). Students in the group, numbering around fifteen, came from many countries, of which relatively few were from the

English-speaking world. Many were from countries where the languages spoken were Spanish, Italian, French or Japanese. Most of the students were assigned to the *Grundstufe*.

German was introduced and used in the classes for communication between the teachers and the students from the very first day onwards. A book, obviously specially designed for the use of adults learning German, was used for this purpose. Classes were held six hours a day (0900 - 1200 hrs and 1400 - 1700 hrs) from Monday through Friday, and 0900 - 1200 hrs on Saturdays. As would be expected, the German language used in the starting stages of the course was of a relatively simple structure. It then proceeded step by step into stages of increasing complexity. Emphasis was placed on grammatically correct usage, even in the beginning stages.

Already during the course, the author gained the impression that the teaching staff at the Goethe Institut Language School had a good appreciation of the peculiar difficulties typically experienced by an adult wanting to learn German. An adult, being generally used to employing his or her own language of choice - whether as a mother-tongue from childhood or through schooling - to express his or her own thoughts in that language, say in English, French or Spanish, when learning German, is often observed to face several difficulties that may be characterized as typical. To give an example, one of these pertains to the proper declension of the article which, in German, is governed by all the three, case, gender and preposition. Some further examples observed to be associated with characteristic difficulties, pertain to pronunciation and formation of the past-tense of a verb. The German language course at the Goethe Institut, through their method of teaching, struck a balance between all the three, viz. grammar, syntax and pronunciation, without which

communication, whether by a written text or oral, is susceptible to errors or misunderstandings or both.

Besides helping the students out of the difficulties mentioned, the teaching staff at the Goethe Institut Language School, Arolsen encouraged their students to put into use what they had been introduced to in the class in their daily life, outside the classroom; a procedure that, in the author's experience, struck deep roots. Furthermore, as part of the course, the students were required to write a short essay (running into a page or two) in German, on a topic of their choice. In any event, to the author these were of much help to gain confidence in using the German language as such.

In short, the course at the Goethe Institut Language School had laid a sound language foundation for the author to engage himself during his stay at the Technische Hochschule (now Technical University) Braunschweig in research work in the subject of his primary interest, which was Fluid Dynamics.

## Learning to Use the Language in Research Work

As just stated, the four-month course at the Goethe Institut Language School in Arolsen had laid a sound foundation for the author in German, but this by itself was not sufficient for him to actively participate in research at the Institut für Strömungsmechanik of the Technische Hochschule Braunschweig. The main shortcomings that the author had to make up for concerned vocabulary and writing, both with strong orientation towards the subject of Fluid Dynamics. For learning to use the language to this end, the author found it necessary to take some steps on his own initiative. Some of the steps he has listed below:

- Read the research literature, when the work had been done and reported in German, in the original language itself, which was of course German.
- Write periodical reports of his research work in German.
- Give the seminar lectures on the ongoing scientific work, which is customary in universities in Germany, in German. It was very helpful to prepare the lectures by writing them out first, paying attention to proper grammatical usage, but not delivering the lecture by reading the written text. Writing out the entire text first helped speaking with ease in German in front of an audience!
- Participate in discussions following a lecture in German, particularly if the speaker has given the lecture in German.

By the time his stay at the Technische Hochschule Braunschweig came to an end, the author had acquired a proficiency in German that met the standards set for a Dissertation (Dr.- Ing.).

## Concluding Observations and Acknowledgement

Since this is an article the author has written based only upon his own experience in learning German, he finds it more appropriate to give this section the title as above, instead of just "Conclusions". In summary, the author can identify himself with his Mentor's words that "it (doing research work in a German speaking part of the world) will be an enriching experience", and he does so unreservedly. Although more than six decades have passed since the author was initiated into the German speaking world, its influence on the author is still breathing full of life, for which he wishes to put on record herewith his

indebtedness both to his Mentor, whom he wishes to refer to in this paper through his (Mentor's) initials AP, and to DAAD. He also thanks the Editor of this volume for asking him to write an article on "Learning German".

### L'Hospital's Rule

This is a rule in Calculus, about which Vasanta Ram has a story to tell.

During the initial stages of his research, in a discussion with his German advisor, the author suggested that a certain problem was not amenable to the solutions then extant. The advisor asked if he had tried "Lo-pitaal's" rule.

Vasanta Ram, who had never heard of this rule, returned a confused negative. The advisor thereupon, somewhat dismissively, called in his secretary and instructed her to take the scholar to the library and point him to the relevant books.

Only then did Vasanta Ram realize that he knew this (quite commonly known) rule as "El Hospital's" rule! That was how it was pronounced during his course of study, and perhaps still is.

Interestingly, an internet search for the rule now shows a spelling closer to the pronunciation: L'Hopital's Rule, along with the conventional spelling: L'Hospital's Rule.

Wikipedia tells us that the rule is named after the 17th-century French mathematician Guillaume de l'Hôpital (French: [lopital]).

-Editor