

Writing Scientific Project Applications for Peer Review

Catherine Histon

kathleen.histon [at] libero.it

Faculty of Science, University of Insubria (Varese, Italy)

Increasing difficulty in obtaining funding for scientific research projects has created high standards in project application criteria. Both national and international funding agencies usually require these applications in English for peer review. Content-based instruction focused on this aspect of technical writing should be highlighted within advanced EAP/ESP courses for non-native speaker scientists. Some examples of the problems non-native speaker scientists encounter in dealing with a typical set of application instructions will be considered.

Introduction

The ever increasing difficulty in obtaining funding for scientific research projects and the decrease in funding sources has led to particularly high standards in project application criteria world-wide. This recent development applies to both national and international funding organisations as project applications are sent for peer review both within a national network and to at least one international referee. Project applications are therefore required in English or partly in English and the L1. A detailed summary and project objectives are normally requested in both languages. Hence, not only is a high standard of science required when making an application but also a high level of written English.

Funding Agencies

As government funding to science in general has suffered drastic cutbacks on a global scale both National and International funding agencies have become more stringent in their selection procedures. As competition for the limited funds available increases annually it is no longer enough to have a scientifically sound and innovative project proposal which clearly merits financial support, one must also present the research in English for peer review. One of the numerous selection criteria that many projects fail is the quality of the English version of the application. Some do not even get to the review stage as the English is deemed to be of too low a standard. Many non-native speaker scientists applying for funds in order to carry on with their research do not have the financial resources to pay for a technical translation and in this way the investment of not only money but also of scientific expertise in science is constantly being undermined.

Application Criteria

Funding agencies provide detailed sets of instructions on what to include in a project proposal and how to complete the application forms. Sometimes these instructions are so detailed that the applicant has trouble in deciphering them unless they are also provided in the L1. This unfortunately is another obstacle to be overcome and another way of eliminating excess applications if they do not conform to standard.

On being approved for funding the abstract or summary of the project is often available on-line through the funding agencies web-site therefore prospective applicants can see what is required and the standard to be achieved. The summary is an important part of the application and must be written clearly and concisely therefore it is extremely useful to be able to compare various examples and identify the style used for a specific discipline. However, complete project applications or a sample application as a guideline for applicants are rarely made available. It is extremely difficult to write a proposal in English using specific argumentative language without knowing the style and conventions adopted by the funding agency. Unfortunately this may be yet another means of cutting down the number of projects which could eventually reach the review stage as the approach used may be negatively evaluated.

Review System

Peer review is often by non-native speaker scientists not familiar with the L1 of the project applicant consequently influences from the L1 of both the applicant and the reviewer give rise to lack of clarity and comprehension both of which have a negative effect on the

applications success in being financed. There is more bias involved here than in reviewing scientific articles as competition for funding is involved, some agencies try to reduce this risk by requesting a list of potential reviewers from the applicant.

Writing conventions and styles even within the same field of research differ from nation to nation and this aspect must be considered by reviewers. Projects submitted for review can rarely remain anonymous as within specific disciplinary sectors it will be obvious to a reviewer who the applicants are or to which research group they belong just from reading the proposal. The address of the applicant, even if a native speaker, may also lead to the incorrect assumption that the English is inadequate by a non-native speaker reviewer. The detailed application and especially the summary must be concise and clear, no "packing" should be included in order to bulk out the proposal as the reviewer will just pass over it and the result will be to create a negative impression. It should be remembered that reviewing is usually not paid and does not appear in a scientific CV so there is absolutely no advantage for the reviewer himself in this activity. It requires a lot of precious time which could be spent in other ways. However, most reviewers realise that they themselves will also be a project applicant at some stage in the future and at the mercy of a reviewer and consequently most are conscientious and fair minded.

ESP/EAP Courses

It is time that these needs were taken into consideration when preparing ESP/EAP advanced writing courses for scientists. The communicative learning approach is more suitable sometimes for oral not written communication as not enough emphasis is placed on "register analysis and textual consistency" (Sionis, 1995). As the content not the form is usually of more importance to the learner in science, this attitude needs to be modified for dealing with certain types of written discourse. Lack of language for argumentation leads to inconsistent reasoning in text and badly expressed arguments by non-native speaker scientists lead to rejected research proposals.

Much emphasis is placed on content-based instruction for writing scientific articles but in order to reach the stage of presenting research the funding for the project must be first secured. Nowadays scientists are often employed on the basis of their ability to obtain independent funds for their research in order to 1) not be an extra burden on the university's budget and 2) to increase the prestige of their department by succeeding in obtaining large grants which allow them not only to carry out basic research but also to buy valuable equipment which then remains available for common use after the project has been completed. It is therefore of increasing importance for non-native speaker scientists to develop their skills in this direction. The non-native speaker scientist must be trained to identify the specific language requirements of his profession, the style used by particular funding agencies and to anticipate the reaction of a reviewer before attempting to write a proposal.

Application Strategies

A typical list of criteria to be covered in a scientific proposal is given below together with specific points normally included under each section. Some examples of commonly used lexical chunks (Schmitt, 2000; Knoy, 2000) for scientific arguments appropriate to these topics have been chosen which may be of use for scientific writing tasks. These have been taken from a proposal submitted to the Austrian Science Foundation (FWF) in 2001 which was granted the full financial support requested. In general written research proposals are usually limited to 15 pages or less (1.5 spacing at 12 pt.) therefore the additional use of illustrations, graphs etc. may help to support specific argumentative language. However, care should be taken that they are incorporated into the text by a consistent use of general language for transmitting the scientist's optimal meaning.

Abstract/Summary

Points to include: a) outline the state of the art of the discipline, b) give the general background to the problem and then c) lead into the specific problem, d) explain the aim of the project and e) give any preliminary results available which have given impetus to the present application. The summary may be recycled from the more detailed sections which follow:

1. Introduction

Points to include:

a) statement of problem to be solved, b) state of the art of the science, c) application of this scientific method to the problem, d) current relevance of the results to be obtained.

Examples:

"In recent times the concept of... has gained wide acceptance in...";
"Based mainly on...";
"SMITH (1969) and JAMES (1969) documented a...";
"SULE (1988) pointed out that different factors control ... and proposed a...";
"EMER & ZEYER (1996) summarised the main points which specifically apply to...";
"most of the above summarised concepts and models were derived from...";
"this is due to various circumstances including...";
"continued investigations are needed in order to produce a consistent...";
"the cause of others however, remains unknown...";
"recognition of the consequences of changes...";
"analysis has opened new avenues for research on many facets of...";
"differing from the...";
"by correlation with other areas where similar studies have been carried out..."

2. Key Objectives of the Project

Points to include: a) repeat the problem to be solved; b) list the individual objectives emphasising the importance of the contribution to be made to the discipline both on a national and international scale if the aims are achieved; c) describe any preliminary results from previous studies which gave impetus to the project proposal.

Examples:

"As much controversy surrounds...";
"it is proposed to apply the concepts above to the....";
"in order to correlate the changes determined with those established in other areas...";
"The project aims at...";
"obtaining a detailed...";
"unravelling local ... for determining global...";
"Interregional and intercontinental comparisons of numerous local ... placed within a refined framework are essential for obtaining a more accurate picture of ...";
"the need for improved temporal resolution in order to provide a sound database for testing models has lead to the recognition of...";
"A preliminary study by HAHN (1999) demonstrated that a detailed investigation is feasible ...".

3. Background

Points to include: previous research

Examples:

"It has been famous since 1894 when Smith first described the...";
"it was presented to the 9th annual meeting which was held in...";
"A combination of data sets derived from...";
"the concept originally defined by...";
"They attributed the origin of these...";
"This contrasted with...";
"The importance of these studies was emphasised by...";
"A special volume dedicated to the use of these methods in North America includes mainly studies on...".

4. Methodology

Points to include: Other on-going studies which will add to the overall progress of the project, the scientific method to be applied.

Examples:

"This study will be based on and add to the studies by...";
"Recent work done by HUGO (2000) on the problem in question will help in the determination of...";
"The proposed investigation will also complement the study presently being done on the..."; "In interpreting the sequences it will be

attempted to first establish the key...";

"Detailed measurements will be carried out and where necessary, samples will be taken for determination...";

"The clear identification of ... is quite difficult as is the distinction of the relative significance of...";

"Hence, any conclusions...";

"are ideal for this study as they represent...";

"therefore the possibility of being able to determine a precise ... is quite high...";

"samples for analysis will be taken to verify...";

"Data from previous studies of these areas will also be incorporated into the proposed investigation for elaborating a precise sequence...".

References

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