

18. Applying for Funding

Obtaining financial support for research can be one of the major preoccupations of a budding research worker. Successful grant applications comprise major milestones in the careers of most academics. As with everything else the process becomes progressively less difficult with experience, and as one builds up a good track record.

The essence of writing a grant application is the ability to express one's ideas in a form that will convince others that the applicant is capable of doing research in an original and interesting area. The applicant is attempting to demonstrate that not only does he have the relevant training and skills, but also originality of thought and commitment to see the project through to its conclusion. Grant giving bodies and their referees need to be convinced that the proposed project is original in concept and feasible, and that the applicant is the person who would complete the research and publish the results in the required time.

Project grants are usually for a defined piece of research to be accomplished in a definite time span, - usually one to three years. They are to be distinguished from programme grants which are for a broad field of research, usually undertaken by scientists who are well established in their field and are exploring a particular aspect of their discipline on a wide front.

At the outset it is important to decide which grant giving body to approach. The choice may be limited in some developing countries, but even there research funding is getting better organized. Most grant giving bodies ask for a one-page summary of the research proposal before inviting a full application. "Is the proposed research appropriate to the aims of the charity (or research council)?" is one of the questions asked of grant reviewers.

The anatomy of a grant application.

The project for which a grant application is being made has to have a defined **aim**. There should be a clearly described **methodology** for carrying out that aim. The applicant should be able to convincingly demonstrate the ability to perform the research with the available technology within the given time. There should preferably be a testable **hypothesis** arrived at after a thorough study of published research about the subject. No granting body can make sums of money available for verifying previous work unless doubts have been expressed about interpretation. Hence the requirement for the hypothesis to be original; and the outcome of the proposed research is purported to extend the existing knowledge. A thorough search of the existing literature is therefore essential. The pitfall one must avoid is that of expressing only one point of view. This is very likely to occur if there is over dependence on review

articles, because they tend to be biased towards the author's point of view. The literature review must quote primary sources and provide a balanced picture of the current state of knowledge. Key papers should be included in the bibliography. It is worth bearing in mind that referees chosen because of their knowledge of the subject would evaluate the application. They would easily identify deficiencies in the background information provided by the applicant. Referees are well aware of the major developments in their field. Misquotation and misrepresentation of facts can be damaging!

Methodology. After formulation of a hypothesis following on a review of the literature, the applicant is expected to describe a study design (or experiment) by which the hypothesis is to be tested. It is important to demonstrate to the referees what type of study design is intended to answer the research question. The design should be feasible, relevant, and capable of completion within the time limit. Concise, well organized arguments written in simple language and short sentences is the best way of presenting a single testable idea, and the method of testing it. Applications describing a shotgun approach to a research question with a multitude of studies nested within it are considered as 'fishing expeditions' and risk being turned down.

It is necessary to state the sample size. Referees would wish to know how likely are the findings to be significant. Hence statistical advice is useful. Collaborative work should be clearly spelt out. Collaboration with a good team adds weight to the application.

If the study involves a clinical trial or invasive procedures on patients then prior approval of the **ethical committee** in the applicant's institution is necessary. A copy of the letter of approval from the committee must be included with the application. Similarly, if hazardous substances are to be used (e.g. isotopes), then a letter of approval from the **safety committee** is also needed.

The grant application form usually carries a section for **personal details**. It is intended for a short curriculum vitae, so that the referees can judge the applicant's ability to carry the project through. If the applicant has worked with a good team in the past mentioning it would add considerable weight to the application. This is particularly so if the applicant has presented papers at scientific meetings. This is one way of establishing one's credentials.

The grant application is for financial support, and there is a section for providing the **details of costs**. Professional salaries, cost of technical assistance, equipment, and recurrent costs should be carefully worked out and included. Many institutions also demand overheads; hence advice should be sought from the accounts department of one's institute.

Having done all this detailed work, it is best to take a fresh look at the draft application. Is it over ambitious? Is one projecting the correct balance between enthusiasm for the research idea and its feasibility? How objective has one been? Is the outcome of the research going to be truly useful? How would the referees view it?

The **referees** are asked by the granting body to particularly consider the application on the basis of originality, technical feasibility, relevance to the field of interest, suitability of the requested equipment, and whether the research would be completed on time. Referees are always external to the granting body, and are chosen on the recommendations of the scientific adviser of the granting body. Sometimes they may be asked particularly to comment on the literature review, and the suitability of the equipment requested. It is not the usual practice to transmit the referees' opinion to the applicant.

The referees' point of view

How do referees evaluate grant applications? Obviously each referee's approach would be unique, but in general a referee would seek answers to a few pertinent questions. These are set out in table (18.1).

Table 18.1 How do referees assess grant applications

Areas of Concern to the referees	Questions to be answered	What the applicant can do
Purpose of Research	Are the objectives clearly stated? Will the outcome add significantly to existing knowledge? Is the study feasible? Is the time scale reasonable?	Make the title interesting, summary crisp and informative. Show that the research question is important and answerable with the resources and expertise available. Many any small scale trial runs if these have been done.
Background information	Is the background information relevant and sufficiently detailed?	Ensure that all references cited have been carefully studied. No important references are left out. The referees must feel no sense of bias, and that in the light of information provided the research question is valid.
Study design and techniques	Is the study design appropriate, and the technique relevant? If the research is dependent on advanced techniques, then are they available to the applicant?	Applicant must convince the reviewer about a good track record, or a known researcher as a supervisor or collaborator.
Personnel involved	Are there right people for the job? Have the right experience? What is their publication record?	Include the CVs of all in the research team.
Facilities needed	Are the expenses reasonable? Has the applicant considered personnel (salaries), consumables and overheads?	Do all the sums in detail, and have them checked by the accounts department of the institution.

As a general rule the referees would be looking for good straightforward answers to some basic questions. It is to the applicant's advantage if the reader does not have to go searching for them in a mass of documents. If the idea for the research is sound the difference between success and refusal would normally lie in the presentation of the application. In the limited space provided on the grant application form, the applicant must convey thoughts clearly and succinctly. To the referee a clearly written grant application describing the main research question and a well-reasoned background information is a sign of clear thinking. After preparing the first draft it is always worthwhile getting senior colleagues to comment on it before finalizing it. Finally, before submission it is to one's advantage to take a fresh look at the application from the point of view of the referees.