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Molecular Life Science Education
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"TIPS FOR WRITING A SUCCESSFUL RESEARCH PROJECT PROPOSAL"

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AIM OF THE PRESENTATION

- The aim is NOT to teach you how to design a research project
- Rather: to help you translate you research plans into an effective research proposal
- Tips, practical advice and encouragement

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OUTLINE OF TALK

- INTRODUCTION
- WHAT IS SCIENTIFIC RESEARCH (BRAINSTORMING)
- "ELEMENTS" OF A RESEARCH PROPOSAL
- "TIPS" FOR WRITING A RESEARCH PROPOSAL
- CONCLUSIONS

BRAIN STORMING

WHAT IS SCIENTIFIC RESEARCH?
We will formulate a list of
"concepts","characteristics,"
 "thoughts", and "feelings"
on and about "scientific research"
……….
……….
……….

Defining the research problem

What?
Why?
How?
Where??
When?

Investigation
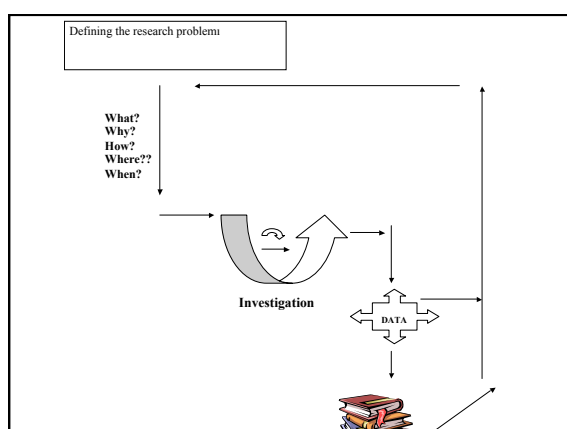
DATA

RESEARCH PROCESS

- 1.Formulation a of a research problem
- 2. Creation of a research design
- 3. Constructing instruments for data collection
- 4. Selecting a sample
- 5.Writing the research proposal
- 6. Collecting data
- 7. Processing data
- 8. Writing the report

FIND OUT HOW PROPOSALS ARE REVIEWED

- **Proposals are sent to program manager; then the proposals go for peer review**
- **Most agencies :**
- **review panels**
- **sometimes in combination with mail-in reviews;**
- **idea is to have a cohesive program, calibrate across reviewers, make the best of a fixed pot of money.**

Reviewer's Load (Typical Example)

- 80 applications to review three times a year
- 16 personal assignments—proposals-reviewer must read and be prepared to discuss
- 6 reviews to write three-four pages each single spaced
- 4 weeks to get it done

THINK ABOUT THAT REVIEWER

- It's late, and your reviewer has had a long busy day. He/she has already read five grants. Yours is next……
- What kind of impression are you going to make?
- Every year the FUNDING AGENCIES turn down good proposals worthy of funding. What can you do about that?
- **Write a great proposal☺**

Principal Components of Research Proposals

Research Problem → Problem Solver
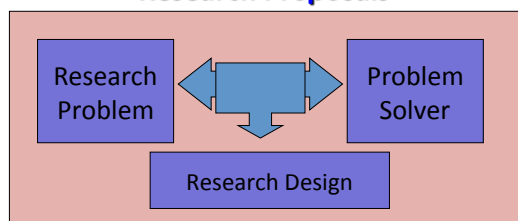
Research Design

Properly fit with sponsorship criteria

ELEMENTS OF A RESEARCH PROPOSAL

- **Title**
- **Abstract**
- **Introduction**
- **Research Design and Methods**
- **Organisation of Research**
- **References**
- **Appendices**

TRY TO AVOID THE FOLLOWING CRITICISMS

- *Not an original idea*
- *Rationale is weak*
- *Uncertain outcomes*
- *Problem is not important*
- *Proposal is unfocused*
- *Project is too large*
- *Writing is vague*

Title

- The title should be clear, unambiguous, and not cute
- The words should reflect the focus of your proposal
- Put the most important words first:

  Title #1 -**Red Haired Musicians and their reference for Musical Style**

  Title #2 -**Music Style Preference of Red Haired Musicians**

Abstract

- Should include clear statements of objectives and tasks

- Should encompass the whole project proposal- not only the introduction

- It is better to write it once you have finished the whole project

INTRODUCTION

- Study Problem
- Rationale/Relevance of the project
- Literature Review
- Research Question
- Aim and specific objectives
- Potential Impact (Added Value)

  (On science, on society, on economy)

Research Question

- Primordial
- Formulate the hypothesis
  "a tentative statement about something, the validity of which is usually unknown' (Bailey, 1976:126)

- Aim and objectives

  (Adjust your research question to the priorities of the sponsor)

Science is Universal

Objectives

- One-sentence bullet list, followed by some explanatory text if needed

- This should be at the end of introduction or as a separate section right after the intro

PREVIOUS ACCOMPLISHMENTS

- **Very important to include**
- **Previous published articles**
- **Pilot study data**

POTENTIAL IMPACT

- **Impact on science**
- **Impact on society**
- **Impact on economy**

- **RESEARCH DESIGN AND METHODS**
I. **Study design**
II. **Subjects**
   Inclusion/exclusion criteria
   Sampling
   Recruitment plans
   Method of assignment to study groups
III. **Data collection**
   Variables: outcomes, predictors, confounders
   Measures/instruments
   Procedures

Research Design

- It is the plan, structure and strategy of investigating the research problem
- It is an operational plan
- Procedures to be adopted
- Testing the design

- **RESEARCH DESIGN AND METHODS (Cont)**
 Statistical Considerations
- Sample size
- Data analysis
Ethical considerations
- Consent form
- Privacy of information
- Information on the decision of the relevant ethical committee

ETHICAL ISSUES

- **Ethical issues relating to research participants (their consent, incentives, sensitive information, harm to participants etc.)**
- **Ethical issues relating to the researcher (avoiding bias, using appropriate research methodology, correct reporting etc.)**

ORGANISATION OF RESEARCH

I. Calender (Timetable)
II. Workplan (work packages- work breakdown)-MILESTONES
      PLAN A- PLAN B!!!
III. Infrastructre
IV. Research Team
V. Budget

PROJECT MANAGEMENT

TIME
calender

COST
resources

outcomes

QUALITY
performance

PROJECT BUDGET
Resources
Personnel
Sub-contracts
Durable equipments
Consumables
Travel
Project management
Overhead

REFERENCES

- Up-to-date
- Numbered in the text
- Highly relevant with the problem
- Original source
  - First Order : Journal Publications and Books
  - Second Order : Proceeding Publications
  - Third Order : Technical Report
- Don't include private communications
- Don't cite support for common knowledge (weakening yourself)

APPENDICES

- Report from the Ethical Commitee
- Legal permission from the institutes
- Agreements, contracts, etc
- Invoices
- CV's

• LAST BUT NOT THE LEAST:

• Administrative process of the project: proposal approvement - e.g. scientific board of the institute, director
• Screening of the grant agencies, funds etc., for the application of the proposal

   Eligiblity
   Focus
   Target

GRANT WRITING TIPS

"Lift your proposal to the level of the 'good' pile"

STARTING OFF…

- **Research areas of your scientific group**
- **Discuss and prepare the scientific hypothesis and specific aims of the project**
- **Background for your hypothesis**
- **Find the partners**
- **Team for the project - role of the partners**

What Makes a Good Proposal?

- **A great idea**

- **Information that convinces the REVIEWERS that you are capable of following through.**

- **A clearly written and well organized proposal can push a borderline idea into the "accepted line".**

Tell a Good Story…

- Never forget context: Every section of your proposal should mention **the relevance of your idea.**

For example:
- The Research Plan is not a review article. It's where you show the timeliness of your idea by answering **"Why now"?**
- When you discuss the literature, bring up your **project idea and why it's relevant.**
- Remain **focused** while writing.

OTHER ISSUES

- **Tone and Appearance**
- **Strive for Perfection**
- **Letters of Support**
  (Submit one rich in detail. If you have a collaborator what is he/she going to do? When? Where? How?)
- **Follow the directions--page length, margin size, and the order in which you put everything together.**
- **Have a Colleague Read the Grant**
- **Attend at least one grant writing seminar. Bring your specific aims page; get some feedback.**

Practical Advice:
Begin 3 Months Before the Deadline

- Might find you need more data
- **Need time:** make certain idea original
- **Need time:** provide details methodology
- **Lack of attention to detail will bury you:** Budget, face sheets, letters from collaborators take time to assemble
- Allows time for a cold reading
- **Quote from a reviewer:**
- "**It's a mistake not to spend a lot of time on grants-Sloppy work really ticks off reviewers."**

If you need to write a revision:

- Read your critique carefully and pay close attention to reviewer's comments.

- When you write your revision, make certain that you've addressed every criticism.

Avoid these mistakes!

- *Not an original idea Rationale is weak*
- *Writing is vague*
- *Uncertain outcomes*
- *Problem is not important*
- *Proposal is unfocused*
- *Project is too large*

Final Words
- A well-written proposal will ease the process of obtaining institutional/ethical approval and will increase your chances of obtaining funding for your project
- A clearly written and well organized proposal can push a borderline idea into the "accepted line"

- Do NOT give-up if you have a rejected proposal. Try again!

Thank-you and Good Luck!