Writing a Successful Shapiro Proposal

2/15/2023

Vera Tsenkova, PhD
Director of Health Professional Student Research
Today’s Goals:

1. Understand requirements for Shapiro applications
2. Scoring rubrics
3. Get application tips and know next steps
4. Allow enough time for one-on-one questions at the end
Random Thoughts and Reminders

- Start an application ASAP
- Scientific writing is so important!
- Your funding chances are unparalleled
- It’s not too late to find a mentor
- **Get in touch with questions:**
  
  Office hours over [WebEx](#) (or email me for other options):
  
  - 2/17 from 1-3pm;
  - 2/22 from 2-4pm;
  - 3/1 from 1-3pm.
Timeline and Next Steps

**December-February**
- Review Research Project lists and contact potential mentors
- Attend a session on Shapiro proposal writing
- Have mentor and project confirmed by early February
- Write a draft of Shapiro proposal
- Attend Office Hours with any questions

**March-April**
- Mentor approves final proposal
- **Submit application by March 3**
- Applications are reviewed by the Student Research Committee
- Notifications are sent out

**May-August**
- Shapiro Summer Research Program
  - Work on your research projects
  - Attend enrichment sessions

**September**
- Submit an abstract to participate in the Medical Student Research Forum

**November 20, 2023**
- Medical Student Research Forum!
<table>
<thead>
<tr>
<th>Your tasks</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>📝 Step 1. Application Facesheet</td>
<td></td>
</tr>
<tr>
<td>🔝 Step 2. Upload Your Resume or CV</td>
<td></td>
</tr>
<tr>
<td>⭐️ Step 3. Upload Your Research Proposal (Proposal Format is Included Here)</td>
<td></td>
</tr>
<tr>
<td>👍 Step 4. Request to Complete Mentor Statement of Support for Shapiro Applicant</td>
<td></td>
</tr>
<tr>
<td>🔝 Step 5a. Upload Mentor CV or NIH Biosketch (preferred)</td>
<td></td>
</tr>
<tr>
<td>🔝 Step 5b. Upload Co-Mentor CV or NIH Biosketch (if applicable) (optional)</td>
<td></td>
</tr>
<tr>
<td>🔝 Step 6. Upload Project-related Approval Documentation (optional)</td>
<td></td>
</tr>
<tr>
<td>🔝 Step 6a. Upload Project-related Approval Documentation (additional space)</td>
<td>(optional)</td>
</tr>
<tr>
<td>📜 Step 7. Shapiro Program Participation Agreement</td>
<td></td>
</tr>
<tr>
<td>Shapiro Proposal Rating Rubric</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Applicant:</strong></td>
<td><strong>Reviewer:</strong></td>
</tr>
<tr>
<td><strong>Beginning</strong> 1-2</td>
<td><strong>Developing</strong> 3-4</td>
</tr>
<tr>
<td><strong>Background and Significance</strong></td>
<td>Rationale for research is weak or not stated. Study is not contextualized within field of literature.</td>
</tr>
<tr>
<td><strong>Hypothesis or Research Question</strong></td>
<td>Statement made, but is neither a hypothesis nor a research question.</td>
</tr>
<tr>
<td><strong>Research Design</strong></td>
<td>Design is inappropriate for research question or has not been described in sufficient detail to evaluate.</td>
</tr>
<tr>
<td><strong>Methods, Data Collection and Analysis</strong></td>
<td>Research question does not match methods. Description of methods missing or inadequate to evaluate proposal.</td>
</tr>
<tr>
<td>Student Role and Motivation</td>
<td>Student Learning Objectives</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td><strong>Beginning 1-2</strong></td>
<td>Objectives are missing, or neither specific nor measurable. Activities and Products provide limited educational value.</td>
</tr>
<tr>
<td><strong>Developing 3-4</strong></td>
<td>Objectives are adequately articulated but broadly stated and may be obvious. Activities and products reflect average educational value.</td>
</tr>
<tr>
<td><strong>Accomplished 5-6</strong></td>
<td>Objectives are specific, measurable, and highly relevant to proposed research. Activities and Products are well described to meet objectives and reflect solid educational value.</td>
</tr>
<tr>
<td><strong>Exemplary 7-8</strong></td>
<td>Objectives are specific, measurable, and highly relevant to proposed research. Activities and Products are well described to meet objectives and reflect excellent educational value.</td>
</tr>
</tbody>
</table>

**Shapiro Proposal Rating Rubric**

**Recommendation (place X in circle):**
- Acceptable for funding as proposed
- Revisions or clarifications with re-review

**Reviewer comments on recommendation (optional if acceptable for funding):**
Here upload a pdf file of your Research Proposal. The proposal must be written using the outline and headings below to be considered for funding. The limit for sections A-F is 3 pages, single spaced, 11 point font, one inch margins. Check your document to ensure that it aligns with this format! Write your proposal in the first person when referring to your role and responsibilities (e.g."I will" rather than "the student will").

A. Project Title

Student Name

Mentor(s) Name and Title

Institution and Department
B. Research Plan

The Research Plan narrative should be written in the applicant’s (student’s) words in sufficient detail for a reviewer to understand the project.

1. Background and Significance (not longer than 1/2 page)
   Describe a clear rationale for your research and establish its significance. Contextualize the study within the field of literature. Literature citations may be included in parentheses within the text, at the end of the research plan in reduced text size, or on a separate page which does not count in the 3 page limit.

<table>
<thead>
<tr>
<th>Background and Significance</th>
<th>Beginning 1-2</th>
<th>Developing 3-4</th>
<th>Accomplished 5-6</th>
<th>Exemplary 7-8</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale for research is weak or not stated. Study is not contextualized within field of literature.</td>
<td></td>
<td>Describes rationale for research but fails to establish significance. Connections to the literature are present but unclear or debatable.</td>
<td>Describes clear rationale and significance of specific research issue. Study is contextualized within field of literature.</td>
<td>Describes a specific and significant issue with high potential for scholarly impact. Study is contextualized within field of literature and proposes a unique approach.</td>
<td></td>
</tr>
</tbody>
</table>
B. Research Plan

The Research Plan narrative should be written in the applicant’s (student’s) words in sufficient detail for a reviewer to understand the project.

1. Background and Significance (not longer than 1/2 page)
   Describe a clear rationale for your research and establish its significance. Contextualize the study within the field of literature. Literature citations may be included in parentheses within the text, at the end of the research plan in reduced text size, or on a separate page which does not count in the 3 page limit.

2. Hypothesis or Research Question
   State the research hypothesis or question clearly and succinctly. Elaborate with specific aims of the study if appropriate.
How Do We Go About Answering Our Research Questions?

- A hypothesis is a specific and testable statement of prediction that is informed by background research.
- It describes in concrete (rather than theoretical) terms what you expect will happen in your study.
- Stating a hypothesis comes early in the process and it is a foundational element of the research study.
The Role of Hypothesis in Research

• The hypothesis attempts to answer the research question.
• A solid hypothesis keeps you honest
  • Can’t peek at the data first
• Elements of a good hypothesis:
  • Is based on in-depth background research on a topic
  • Is tightly linked to background, methods, results, and future directions.
  • Is well-focused, testable and falsifiable
  • Variables in the study must lend themselves to observation, measurement, and analysis
  • Specifically states the directionality of expected results (unless exploratory research)
  • Does not have to be correct
PICO(T) Model

P = Population (the sample of subjects you wish to recruit for your study)
I = Intervention (exposure or the treatment that will be provided to participants in your study)
C = Comparison (the reference group, which could be a control group or a gold standard treatment)
O = Outcome (disease incidence/prevalence, severity)
T = Time (the time it takes to see the outcome)

Type of Question
Type of Study

In POPULATION, INTERVENTION as compared to COMPARISON/CONTROL GROUP results in OUTCOME in a certain TIME frame
3. Research Design and Methods (1 page)
This is the most important section and must be specific! Outline the research design and the methods to be used in sufficient detail for a reviewer to understand. Include descriptions and details of the relevant study population, data collection protocols, data analysis methods, and an anticipated sequence and weekly timeline for the project. Identify potential challenges and alternative approaches or solutions.

<table>
<thead>
<tr>
<th>Research Design</th>
<th>Beginning 1-2</th>
<th>Developing 3-4</th>
<th>Accomplished 5-6</th>
<th>Exemplary 7-8</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design is inappropriate for research question or has not been described in sufficient detail to evaluate.</td>
<td>Design is described in overly simplistic terms or appears to be under development.</td>
<td>Design is identified and described in sufficiently detailed terms. Potential challenges not identified.</td>
<td>Design is identified and described in very detailed terms. Potential challenges have been identified and solutions considered.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methods, Data Collection and Analysis</th>
<th>Beginning 1-2</th>
<th>Developing 3-4</th>
<th>Accomplished 5-6</th>
<th>Exemplary 7-8</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research question does not match methods. Description of methods missing or inadequate to evaluate proposal.</td>
<td>Research question somewhat aligns with methods. Descriptions of relevant study population, data collection protocols, analytical methods are confusing or incomplete, with unstated timeline.</td>
<td>Research question aligns well with methods. Descriptions of relevant study population, data collection protocols, analytical methods are mostly complete. Project can realistically be completed in allotted time.</td>
<td>Research question aligns well with methods. Descriptions of relevant study population, data collection protocols, analytical methods are complete with high likelihood of generating valid and reliable data. Project can realistically be completed in allotted time.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C. Student Role, Responsibilities, and Motivation

Clearly outline your responsibilities on the project.

Also indicate any specialized lab techniques, data collection and analysis skills needed to conduct your research. If you will need training to conduct your project, indicate the plan to acquire such training. Note if you will work independently or with others as part of a research team.

If you have worked on your project previously, note this, and state how your work next summer will advance your research knowledge and skill level.

Provide a brief personal statement of why you want to undertake this project: what interests you, motivates you, and how this experience will enhance your education and professional development.

<table>
<thead>
<tr>
<th>Student Role and Motivation</th>
<th>Beginning 1-2</th>
<th>Developing 3-4</th>
<th>Accomplished 5-6</th>
<th>Exemplary 7-8</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student role and responsibilities minimally described, indicate low quality of involvement in research, or do not match skill level of student. Statement of motivation missing or cursory.</td>
<td>Student role and responsibilities adequately described and indicate moderate quality of student involvement. Student may or may not have skills to execute project. Motivation is primarily exposure to field rather than research.</td>
<td>Student role and responsibilities clearly described with high quality of student involvement. Student has or will acquire skills to execute project. Motivation includes both exposure and advancement of research skills.</td>
<td>Student role and responsibilities well described. Active level of involvement which challenges student beyond previous research experience. Student has or will acquire skills to execute project. Motivation indicates high level of interest linked to future scholarly ambitions.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
D. Learning Objectives, Activities, and Products

Develop 3 or 4 Learning Objectives for your experience that you have discussed with your mentor. For each objective, list what Activities you will undertake to achieve the objective, and Products that will provide evidence of your learning. These must be included for your application to be considered. Remember that learning objectives should be specific, measurable, and highly relevant to your proposed work.

<table>
<thead>
<tr>
<th>Student Learning Objectives</th>
<th>Beginning 1-2</th>
<th>Developing 3-4</th>
<th>Accomplished 5-6</th>
<th>Exemplary 7-8</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives are missing, or neither specific nor measurable. Activities and Products provide limited educational value.</td>
<td>Objectives are adequately articulated but broadly stated and may be obvious. Activities and products reflect average educational value.</td>
<td>Objectives are specific, measurable, and highly relevant to proposed research. Activities and Products are well described to meet objectives and reflect solid educational value.</td>
<td>Objectives are specific, measurable, and highly relevant to proposed research. Activities and Products are well described to meet objectives and reflect excellent educational value.</td>
<td>Points</td>
<td></td>
</tr>
</tbody>
</table>
### E. Mentoring Plan

Discuss project and productivity expectations with your mentor and make sure that your expectations align with your mentor’s. State your agreed-upon plan for regular meetings with your mentor and any others who will supervise your work. To whom will you go when there are problems to be resolved? If your day to day activities will be supervised by a post doc or other research staff, include the name of that person and indicate if you have met or will meet to discuss the project, your role, expectations, and communication. An exceptional plan will include other educational activities in which you might participate (journal clubs, lab meetings, trainings, shadowing, etc.)

<table>
<thead>
<tr>
<th>Mentoring Plan; Mentor Letter of Support</th>
<th>Beginning 1-2</th>
<th>Developing 3-4</th>
<th>Accomplished 5-6</th>
<th>Exemplary 7-8</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal or vaguely described mentoring plan; Cursory mentor letter of support.</td>
<td>Adequately described plan limited to regular meetings with mentor; Acceptable mentor letter of support.</td>
<td>Well described plan includes regular meetings with mentor and other mentoring and enrichment activities. Acceptable mentor commitment expressed in letter of support.</td>
<td>Exceptional plan with activities that include regular meetings with mentor and other mentoring and enrichment activities. Strong mentor commitment expressed in letter of support.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
F. Approvals

Here briefly state the status of institutional review board approvals or exemptions (human subjects, animal use, biohazardous materials, etc) for the project, or indicate if they are not needed. If approvals have not yet been obtained, indicate the plan and timeline for doing so prior to the start of the project.

Copies of human subjects, animal or biohazardous material approvals related to the project will be uploaded as another task in this application.

Be aware that all necessary approvals for the project must be obtained prior to your work start date.
Frequent Pitfalls

1. Needs IRB approval
2. Hypothesis not stated
3. Lack of detail or vague proposal (frequently the Research Design section)
4. If your mentor has two students: your projects are not distinct
5. Challenges not stated and addressed
6. Statistical analysis not specific
7. Scope too large for time available
8. Mentoring plan is vague
Application Tips

- Don’t ask me if it’s OK to go over page limit.
  - It’s not.
- You are the author. Write in the first person.
- Don’t copy and paste from mentor’s grant.
- Give your mentor plenty of time to review draft.
- Provide mentor enough time to submit statement of support.
- Have a friend critique proposal using the rating rubric.
- Edit, edit, edit. Spell check! Grammar check!
Questions?

Vera Tsenkova, PhD
tsenkova@wisc.edu

HTTPS://SUMMERRESEARCH.MED.WISC.EDU/