


TUES **TYC** Outline


- Components of a good proposal
- NSF Review criteria
- Articulating a rationale
 - Goals, objectives, outcomes
 - Evaluation
- Practical aspects of proposal writing
- Some fatal flaws



ZYC, Webinar
December 17, 2014

1

TUES **TYC** Components of a Good Proposal




ZYC, Webinar
December 17, 2014

2

TUES **TYC** 1. A well defined problem

- ***Aligns with the program solicitation***
- Based on your local experience and knowledge
- Offers potential for significant impact




ZYC, Webinar
December 17, 2014

3

T
U
E
S

T
Y
C



2. A Rationale for Your Approach


- Local data to support and justify the problem
- Evidence that you know what others have done
- Evidence/argument for impact – locally, broadly

ZYC, Webinar
December 17, 2014

4

T
U
E
S

T
Y
C



3. A set of clear goals, objectives, and outcomes


- Goals: “Big picture” – how will it change things? Why is it important?
- Objectives: What are you going to do/what are your strategies?
- Outcomes: What can you measure?

ZYC, Webinar
December 17, 2014

5

T
U
E
S

T
Y
C




4. A well designed evaluation plan

- Conducted by a credible/objective evaluator (typically external)
- Clearly tied to project goals, objectives, and outcomes
- Includes both formative and summative components
- Uses appropriate methods/instruments

ZYC, Webinar
December 17, 2014

6

T T
U Y
E C
S



5. A detailed project management plan

- Timeline for major project activities
- Description of responsibilities of project personnel
- Evidence of expertise of project personnel to carry out proposed work
- A well-aligned and justified budget

ZYC, Webinar
December 17, 2014

7

T T
U Y
E C
S



6. A means of sustaining and disseminating the project

- Evidence of institutional commitment
- Details on which activities will be sustained
- How will you share results/promote dissemination?

ZYC, Webinar
December 17, 2014

8

T T
U Y
E C
S



NSF Review Criteria

ZYC, Webinar
December 17, 2014


9

TUESDAY

- All proposals are evaluated using the NSB-approved merit review criteria

Intellectual merit
Broader impact

- NSF-wide criteria
- Program-specific criteria



ZYC, Webinar
December 17, 2014


10

TUESDAY

NSF-wide Suggested Questions for Intellectual Merit

Will the project:

- Include activities important in advancing knowledge?
- Involve qualified proposer(s)?
- Contain creative, original, and transformative concepts?
- Have a well conceived and organized plan?
- Include sufficient access to resources?



ZYC, Webinar
December 17, 2014


11

TUESDAY

NSF-wide Suggested Questions for Broader Impacts

Will the project:

- Advance discovery -- promote teaching & learning?
- Broaden participation of underrepresented groups?
- Enhance the infrastructure?
- Include broad dissemination?
- Benefit society?



ZYC, Webinar
December 17, 2014


12

T
U
E
S

T
Y
C

Articulating your rationale

Defining project goals, objectives, and outcomes



ZYC, Webinar
December 17, 2014


13

T
U
E
S

T
Y
C

Project Rationale: Need and Strategy

- Rationale is a narrative that makes a compelling case for
 - i) the need for the project
 - ii) the proposed strategy for addressing the problem



ZYC, Webinar
December 17, 2014


14

T
U
E
S

T
Y
C

What is included in the project rationale?

- Local data/information that documents a need/problem/opportunity
- What the knowledge base say about your approach
 - *What have others done that is related?*
 - *What has worked previously?*
 - *What have been the problems/challenges?*




ZYC, Webinar
December 17, 2014

15

T **T**
U **Y**
E **C**
S

- Why the problem is important
 - *Is it a global or local problem?*
 - *What are the potential broader impacts?*
- *How will it improve the quality of learning?*
The evidence that the approach will solve the problem
 - Address the defined outcomes?
 - Improve student learning?
- Discussion of alternative approaches
 - Mention other strategies and why you selected the one (or combination) that you did




ZYC, Webinar
December 17, 2014

16

T **T**
U **Y**
E **C**
S

- Potential problems & limitations in your strategy
- Any prior work or testing of the strategy (pilot studies)



ZYC, Webinar
December 17, 2014

17

T **T**
U **Y**
E **C**
S

Project Goals, Objectives, & Outcomes


Defining Goals
Broad, overarching statements of intention or ambition

Defining Objectives
Description of project activities

- *More focused and specific than a goal*
- *A goal typically has several objectives*

Defining Outcomes
Impact of activities

- *Measurable with criteria for success*
- *A single objective may lead to more than one outcome*




ZYC, Webinar
December 17, 2014

18

T
U
E
S

T
Y
C




Project Evaluation

ZYC, Webinar
December 17, 2014

19

T
U
E
S

T
Y
C



Evaluation Plan

A design to evaluate individual and group performance *within the context of the project*

Types of Evaluation

Formative – monitoring progress to improve approach


Summative – characterizing final accomplishments

ZYC, Webinar
December 17, 2014

20

T
U
E
S

T
Y
C



Relationship to Goals, Objectives, Outcomes

- Effective evaluation plan aligns with defined project goals, objectives, and expected outcomes
- Includes assessment of :
 - Project management
 - Activities and products
 - Project impacts
 - Learning, attitudes, retention, etc.


ZYC, Webinar
December 17, 2014

21

TUESDAY

Components of an Evaluation Plan

- Name & qualifications of an evaluation expert
 - Get the evaluator involved early in the proposal development phase*
- Goals, objectives, and outcomes evaluation questions
- Instruments/metrics for evaluating each question
- Protocols defining when and how data will be collected




ZYC, Webinar
December 17, 2014

22

TUESDAY

- Analysis & interpretation procedures
- Formative evaluation techniques for monitoring and improving the project as it evolves
- Summative evaluation techniques for characterizing the accomplishments of the completed project




ZYC, Webinar
December 17, 2014

23

TUESDAY

Approaches to Data Collection

- Quantitative methods
 - Numbers, test scores, statistics, etc.
- Qualitative methods
 - surveys, interviews, observations, etc.
- Mixed methods




ZYC, Webinar
December 17, 2014

24

T
T
U
Y
E
C
S

Examples of Evaluation Tools

- Surveys
- Concept Inventories
- Standardized tests
 - Measuring critical thinking, cognitive ability, attitudes
- Rubrics for analyzing student products
- Observations
- Interviews
- Focus groups




ZYC, Webinar
December 17, 2014

25

T
T
U
Y
E
C
S

Some Evaluation Resources

- *NSF's User Friendly Handbook for Project Evaluation*
– <http://www.westat.com/pdf/projects/2010ufhb.pdf>
- ATE Evaluation Resource Center <http://evalu-ate.org/>
- Online Evaluation Resource Library (OERL)
– <http://oerl.sri.com/>
- Field-Tested Learning Assessment Guide (FLAG)
– <http://www.wcer.wisc.edu/archive/cl1/flag/default.asp>
- Student Assessment of Their Learning Gains (SALG)
– <http://www.salgsite.org/>
- *Evaluating & Improving Undergraduate Teaching in STEM*
– National Research Council (2003)




ZYC, Webinar
December 17, 2014

26

T
T
U
Y
E
C
S

How to Find and Evaluator

- Institution's Center for Teaching and Learning
- Institution's Center for Evaluation (in STEM)
- Colleges and Departments (Education, Ed Psych, Engineering, Science, Public Admin)
 - Colleagues
 - Professional Societies
- American Evaluation Association Website




ZYC, Webinar
December 17, 2014

27

T
T
U
U
E
E
S
S

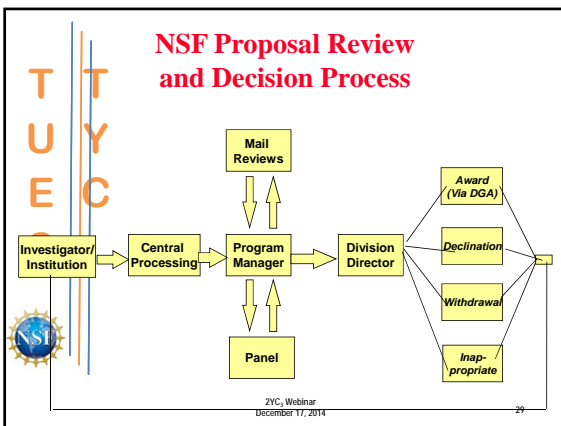
Practical aspects of proposal review

Structure and style issues



ZYC, Webinar
December 17, 2014

28




T
T
U
U
E
E
S
S

Practical Aspects of the Review

Reviewers have:

- Many proposals
 - Ten or more from several areas
- Limited time for your proposal
- Different experiences in review process
 - Novices to veterans
- Different levels of knowledge in proposal area
 - Experts to outsiders
- Discussions of proposals' merits at panel meeting
 - Share expertise and experience




ZYC, Webinar
December 17, 2014

30

TUESDAY

Style Suggestions

- Avoid page after page of dense prose (makes reviewers crabby)
- Format your proposal into sections/subsections
- Use bolding/underlining appropriately (but not excessively)
- Incorporate white space between sections/subsections
- Use tables where possible (e.g., timeline, personnel responsibilities, evaluation plan)




ZYC, Webinar
December 17, 2014

31

TUESDAY

If You Have Questions and Concerns During Proposal Preparation

- Read the solicitation and the GPG
- Get advice from NSF program officers or experienced colleagues
- Use an “imaginary panel” (*Experts, novices, in-field/out*)
- Don't include a poorly developed section because someone told you that it is needed



ZYC, Webinar
December 17, 2014


32

TUESDAY

Fatal Flaw #1

My ideas are so great I'm certain NSF won't care whether they fit the program guidelines.

- Read the solicitation completely and carefully
- Write proposal and address each area outlined in the solicitation




ZYC, Webinar
December 17, 2014

33

T **T** Fatal Flaw #2
U **Y** **“Trust us, we know what we’re doing.”**
E **C**
S


- Most commonly cited shortcoming in proposals
- Formulate your idea(s) clearly; provide implementation details
- Identify specific tasks and a timeline
- Give background information; cite literature – demonstrate knowledge of prior work
- Address broader impacts; if diversity is one of your goals, how will you recruit and support students?



ZYC, Webinar
December 17, 2014 34

T **T** Fatal Flaw #3
U **Y** **“I’m sure they don’t actually count the pages.**
E **C** **No one will notice I’m over the page limit.**
S **Maybe I should just use a smaller font.”**


- Kicked back without review
- Follow page and font-size limits
- Consult the program solicitation and the GPG (Grant Proposal Guide)



ZYC, Webinar
December 17, 2014 35

T **T** Fatal Flaw #4
U **Y** **“NSF should know what I’ve done in the past**
E **C** **without my having to tell them. After all, they**
S **paid for it.”**

- Provide results from prior funding
- Include a Dissemination plan in your current proposal




ZYC, Webinar
December 17, 2014 36

TUESDAY Fatal Flaw #5

"Evaluation will be ongoing and consist of a variety of methods."

- Have an external evaluator
- Plan for formative and summative evaluation
- Include evaluation plan with timelines and benchmarks




ZYC, Webinar
December 17, 2014 37

TUESDAY Fatal Flaw #6

"I'll inflate my budget because NSF always ends up cutting it anyways"

- Budget should directly reflect work plan
- Provide biographical sketches for all key personnel




ZYC, Webinar
December 17, 2014 38

TUESDAY Fatal Flaw #7


"FastLane, Grants.gov? What are they?"

- Test drive FastLane/Grants.gov
- Consult your Sponsored Research Officer (SRO)
- **Spell check and grammar check**
- Start Early



ZYC, Webinar
December 17, 2014 39

TUES **TYC**



Conclusions

Start Early
Read the solicitation!
Read the *GPG!*


Start Early
Read the solicitation!
Read the *GPG!*

Start Early
Read the solicitation!
Read the *GPG!*


ZYC, Webinar
December 17, 2014

40

TUES **TYC**



Questions and Answers



ZYC, Webinar
December 17, 2014

41
