

Writing as a Team

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In the 1967 film, *The Graduate*, Dustin Hoffman's character, Benjamin, is given some insider career advice by his father's business partner: "There is a great future in plastics." If the movie were made today, the classic line might be rephrased as: "**There is a great future in interdisciplinary research.**" Indeed, if interdisciplinary research were listed on the New York Stock Exchange, it would surely be a growth stock, something obvious to anyone tracking funding trends in federal agency solicitations over the past several years. Of course, along with interdisciplinarity comes teaming.

Interdisciplinary teaming adds several important new dimensions to how proposals are planned, developed, and written, not the least of which are team dynamics and writing as a team. These are not trivial issues to address, but are necessary for a successful proposal. Too often the proposal development team assumes that if there are team members representing the core disciplines needed to address an interdisciplinary solicitation involved in the project, then that is sufficient for a successful proposal. **Unfortunately, it doesn't work that way in practice.**

Interdisciplinary teams may have the appropriate disciplinary representation to address an interdisciplinary solicitation, but they still **may function in practice as a siloed team** unless early on in the proposal planning process they answer some key questions that must be addressed in the research narrative. These include: **Why are we a team? What synergies and benefits result from our team configuration not otherwise possible? What are the key team research interactions and interdependencies needed for success? Does each team member understand the research role of every other team member? Does each team member understand how his or her research will be impacted and enabled by the research of other team members?, etc.**

Answering questions like these will provide the glue that binds together and integrates the proposal development and writing process. **Bottom line:** success in interdisciplinary team grant writing requires more than just all the required component parts (disciplines) being present—**it requires a clearly understood disciplinary synthesis among the team members that is then communicated in the research narrative to the reviewers.** If this is not present, the task of writing a synergistic and integrated research narrative will be an impossible one. Therefore, it is key to a successful research narrative that the **PI puts in place early on a plan for integrating multiple research narrative contributions from multiple authors from multiple disciplines.**

Moreover, interdisciplinary team proposals that include multiple research partners pose a particular challenge to the coherence of a project narrative. Individual team members typically contribute individual narrative statements featuring their prior and future research, **but those statements too often fail to explain how that research will integrate with other team members' contributions to the proposed project.** These "stand-alone" statements fail to describe how each research strand complements every other strand, adding up to an

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integrated set of contributions to the project's vision, goals, and objectives. These individual narrative contributions often do not address the overarching questions that motivate the research, nor do they describe each of the multiple research strands in a context that clearly demonstrates their relationship to the motivating questions or hypotheses.

Too often, these typically **descriptive only** contributions to a proposal narrative resemble a series of isolated numbers comprising the combination to a safe, **but lacking the key sequence required to open it**. In the case of a project narrative, the combination needed for funding must be a **logically ordered sequence** of questions, or hypotheses, or perhaps statements of need, depending on the agency and type of research, that explain the novel, significant, and specific features of the research activities described in the narrative and the value the team structure brings to the project in ways not otherwise possible.

Descriptions of research activities or capacities improperly sequenced and explained within the overarching context of a research vision, goals, and objectives **turn the narrative into something of a mystery for readers and reviewers**. You don't want reviewers noting to themselves and other panel members that *"it is not at all clear why all these descriptions about various research capacities are important and what exactly this research team intends to do."* However, this will be the result if the research narrative evolves, to use the current vernacular, as a collection of **"stove-piped" or "siloed" contributions by multiple authors**.

For example, a proposal addressing an issue related to sustainability may be comprised of research team members from geosciences; physical, biological, and agricultural sciences; engineering; computational sciences; and the social and behavioral sciences. Perhaps the research focus is on the sustainability of a coastal ecosystem impacted by climate change. In this case, it is easy to envision multiple research contributions by those with research expertise in climate, water, modeling, sensors, coastal biology, social and economic impacts of sustainability on affected stakeholders, and research expertise on one or more species in the coastal estuaries that serve as indicators of ecosystem health. Moreover, it is easy to see how researchers in one of the foregoing research areas important to the sustainability of coastal ecosystems may be tempted to write their narrative contributions as **"siloed text."**

This will most likely occur when the vision is still evolving as the research contributors draft their narrative contributions, or when the overarching questions motivating the research have yet to be fully defined, or are in the process of being re-defined. **The vagueness or incompleteness of the research vision can increase the likelihood that a first full draft of the proposal will read as a series of siloed statements unintegrated with one another.**

Moreover, it is often the case that the **research team members attempt to do too many important tasks simultaneously but in isolation from each other**. In these cases, finding time to draft text is often difficult enough, let alone adding the requirement of reading and considering others' contributions. This difficulty can be compounded by electronic communications among team members that fluctuates between periods of silence punctuated by a cascade of electronic messages, often including drafts of graphics, figures, and multiple track-edited versions of an evolving project description that can quickly become a blizzard, or rainbow, of track edit colors.

These issues all cry out for an orderly resolution grounded on a well-crafted proposal development schedule and a **plan for narrative integration among contributing authors**. This planning tool will help meld the vision and goals of the project and communicate them

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continuously via a defined production timeline to all of the contributing authors. This will better ensure that the text evolves in a way that not only describes the importance of each research-specific strand or research contribution **but also describes how it interrelates with every other research strand included in the project description**. It is not an easy task, but this integration holds the key to success. The team is well advised to find someone among its own members or from a campus research office who can **assist the PI in bringing informed coordination to the proposal development process**.

Another pitfall of a multiply-authored research narrative or project description lies in writing these **statements as if the authors were contributing to an edited collection or a journal issue rather than to the single, integrated statement** identified as the research vision. This occurs most often on interdisciplinary proposals that evolve ad hoc rather than from a well-planned proposal production schedule, or when the decision to submit these complex proposals occurs only a month or several weeks before the due date. In this last case, the proposal schedule can lead to a “fire drill” in which potential new research partners are added concurrently with the writing of the first drafts of the research narrative.

These situations can produce several drafts of the project description at a rapid rate as multiple contributions are added to the narrative. The complete draft of the project description may give the illusion of completeness, **but on closer examination lacks an overarching organizing theme or research vision that synthesizes the component contributions resulting in a coherent and logically sequenced whole**. Correcting this document after it has evolved can be difficult; unfortunately, such a draft is likely to amount to **nothing more than a siloed collection of research descriptions** loosely associated and lacking a narrative thread that can persuade reviewers of its coherence. Once a complete narrative structure has emerged, contributors resist making major renovations to it. However, if the collaborators understand that the first full draft of a research project narrative is best viewed as a preliminary set of loosely associated descriptions, then the principal investigator can call for major revisions designed to produce a more integrated statement.

Indicators of a failed or weak narrative may reveal themselves sufficiently before the due date to allow the time and effort required to transform a weak narrative into a competitive narrative. Perhaps the best indicator of a weak complete first draft of the research project description begins with a nagging sense of unease after reading it. It doesn't seem to convey a clear sense of what specifically is being proposed, what important questions are being addressed, or hypotheses posed, nor does it explain why the research is unique in the context of the disciplinary fields, nor why it is innovative or advances the fields in some way. It may also fail to convey a sense of how the multiple research descriptions meld to an integrated whole. This is a managed process and must be planned for during the planning and development stages of the proposal, so that by the time draft narrative sections are being written, all contributing authors know the expectations for an integrated research narrative.

The best solution to the above issues is to formulate a plan for the proposal's production that anticipates such core issues as partnership configurations, vision, and goals in a logical sequence that allows time for a draft narrative of the project description to evolve continuously. A poorly planned proposal has little likelihood of success. Walt Kelly's Pogo once famously observed, “We have met the enemy and he is us!” That observation perfectly fits a **poorly planned and poorly coordinated** proposal development effort. But preparation and

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continuous coordination and communications can save you from becoming your proposal's worst enemy by avoiding the issues discussed above. A well-planned and well-coordinated proposal development effort cannot turn ideas of modest importance into ideas of compelling significance, but it can give your ideas a chance to be realized. A well-crafted proposal will require continuous revisions to ensure that the project as a whole includes and exceeds the sum of its individual contributors.

The bottom line is that you must convince the reviewers that there is significant value in the interdisciplinary team structure and that there are important research interactions and synergies that will occur among the disciplinary partners not otherwise possible. For example, John Harrison was paid 20,000 pounds by the British government in 1761 (well over \$2 million in today's dollars) for his invention of the marine chronometer that made a very significant contribution to navigation by allowing the calculation of longitude, which, combined with latitude determined by sextant, for the first time permitted knowing a ship's precise location. You can think of the chronometer as an "interdisciplinary" mechanical system. ***It is not the individual parts of the chronometer that are important; it's how the parts work together.*** The same hold true for a research narrative describing an interdisciplinary team project.