NATIONAL SCIENCE FOUNDATION
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Frequently Asked Questions (FAQs) for NSF 20-612, Research on Emerging Technologies for Teaching and Learning (RETTL)

It is critically important to carefully review the solicitation NSF 20-612. Pay careful attention to all requirements listed in "Proposal Preparation Instructions." Specific to RETTL: a) the project description must describe the vision of the technology and learning innovations and the proposed methodology; b) advisory board members should not be contacted nor named in the proposal; and c) a collaboration and management plan is required.

1. **What resources exist for RETTL PIs?**

   The Center for Integrative Research in Computing and Learning Sciences (CIRCLS) is the NSF-funded Resource Center that supports the RETTL PI community. Please review the resources on the CIRCLS website; in particular, see the program webinar where we discuss the solicitation and list other programs that might be a better fit.

2. **What are some examples of funded projects?**

   See recently awarded projects in the NSF award search. Please note that "Cyberlearning" was the previous name of the program. Two reports may be useful in understanding the goals and impact of previously awarded projects: 1) "Ambitious Mashups" describes how funded efforts combined multiple emerging technologies to expand the frontiers of learning; 2) "Cyberlearning Community Report" provides examples of past projects, including advances in both the learning sciences and computer sciences.

3. **What are the key requirements for RETTL?**

   Projects must a) focus on early-stage research, with exploratory and future-oriented components; and b) synergistically advance research in both the learning and computer sciences, with an interdisciplinary team that has expertise in both areas. Research should also address issues related to fairness, privacy, ethics, and equity. We encourage projects that broaden participation of people and institutions.

4. **What does RETTL not fund?**

   With its strong focus on future-oriented exploratory research, the program does not fund:

   - Projects that involve incremental advances of existing technologies (e.g., technologies already in widespread use or soon to be broadly available for teaching and learning) or deployment/implementation of existing technologies in novel learning contexts. For example, a project that involves implementing an existing computing technology in a learning setting without advancing research in computer science/engineering is not within scope.
   - Projects that focus on assessment or evaluation of impact of an existing learning technology.
   - Projects that adapt existing learning technologies to other learning contexts and domains.
   - Projects that focus on increasing competency in using existing technology (e.g., computer literacy).

5. **What is meant by future-oriented research?**

Successful RETTL proposals should be future-oriented with goals that go beyond applying knowledge to a novel issue or important teaching and learning challenge; they seek to generate knowledge that researchers and practitioners will need to make the best use of technology for teaching and learning in the future.

6. **What is meant by exploratory early-stage research?**

   RETTL is an incubator program for researching project ideas that are unproven and may not work. The primary focus must be on research, not development. We encourage projects that have an element of risk. For example, this could include researching an emerging technology that has rarely been applied to teaching and learning and/or researching a highly novel design concept with the potential to transform the processes of teaching and learning.

7. **What is meant by synergistic research that advances both the learning and computer sciences?**

   The focus of the problem should be aligned with an identified learning need and grounded on theoretical foundations of learning in the specific context. There should be research questions about how advancing computer science technology supports the learning need/problem in the learning context. Synergistic research could be design-based in nature and should be highly interdisciplinary (e.g., involving the collaborative engagement of multiple disciplines) in advancing learning technology research. One way to show that a proposal "advances both" computer and learning sciences would be to aim for contributions that appear in interdisciplinary venues of interest to both computer and learning scientists. Please review the resources listed in FAQ #2, above.

8. **What is meant by research that advances computer science/engineering?**

   The technology research in RETTL should focus on how the technology innovation/advancement supports learning. The research should advance fields involving computer science, information science, and/or engineering. For example, the research could include innovations in artificial intelligence techniques (e.g., machine learning, human language technology, computer vision), human-computer interaction (e.g., in immersive and/or virtual environments), learning analytics and educational data mining.

9. **What is meant by research that advances learning?**

   RETTL projects should advance learning research regarding knowledge about principles, processes and mechanisms of teaching and/or learning in the context of a technology-based innovation. This could include research by learning scientists, as well as education researchers, educational psychologists, and cognitive, behavioral and/or

social scientists. For teaching, this could include new teaching processes and approaches (e.g., andragogy and pedagogy), relevant to how the proposed technology will be situated in an educational setting. Research that focuses on evaluating the effectiveness of a curriculum, teaching, or technology-based intervention is not within scope for RETTL.

10. **Why is a Collaboration and Management plan required?**

    As described in FAQ #7, RETTL projects should be highly interdisciplinary and convergent in nature, with team expertise in both the computer and learning sciences. Conducting interdisciplinary research is challenging, and the collaboration plan is necessary to describe activities for scientific integration across the project team. The proposal must include a Collaboration and Management Plan or it will be returned without review — there are no exceptions.

11. **What about Advisory Boards?**

    While we encourage that proposers budget to include an Advisory Board, to avoid potential conflicts of interest issues during the merit review process, do not contact or name specific members in the proposal.

12. **Does RETTL fund for-profit institutions?**

    Both for-profit and not-for-profit institutions may apply. However, given that RETTL is a research program, it is strongly recommended that institutions of higher education (IHEs) lead the projects. A goal of RETTL is to build capacity at IHEs, through training and supporting students, interns, and postdoctoral researchers.

13. **How can I get feedback on whether my research idea is a good fit?**

    After reviewing the above resources, a 1-2 page project summary may be submitted to the RETTL program leads (Amy Baylor (abaylor@nsf.gov) and Tatiana Korelsky (tkorelsk@nsf.gov)), and we will provide feedback whether the project is within scope for the program. Upon request, CIRCLS (see FAQ #1) can provide suggestions for researchers who are looking to add complementary expertise to their team. CIRCLS may also be able to suggest mentors or other support for investigators who have not yet received an award in this program area.