

Global Research Alliance in Language (GRAIL)

Proposal to the U21 Annual General Meeting, Santiago de Chile, May 2015

Objective. Language science researchers from across the U21 network propose to work with institutions and with U21 on an experiment in globalization that has two aims.

- (i) Extend -- and integrate -- U21 activities by building a broad new interdisciplinary field.
- (ii) Collaborate with institutional leaders and administration to develop an effective, sustainable, and replicable model for building global research capacity.

Institutional Challenge. Universities want global impact, but their pieces are disconnected. The motivations and energy of researchers, students, and leadership are often misaligned.

Why Language Science? *Language Science* is a cover term for research that spans fundamental science (from philosophy to neuroscience), and applications in education, technology, and health. Language Science spans 15 departments in some U21 institutions.

Scientific and societal impact. Language Science doesn't often feature in lists of Grand Challenges, but it should, as it has all of the key ingredients. Recent changes in global mobility and technology make it essential to acquire expertise in new languages, flexibly and rapidly. This is equally true for humans and for machines, and it affects many domains, from commerce, to international relations, to education, and to health. Current language technologies, such as *Google Translate* and Apple's *Siri*, are inflexible, and depend on Big Data approaches that do not generalize to 99% of the world's 6000 languages. Adult language learning skills are more important than ever, but outcomes are poor. Crises involving health, security, or natural disasters can turn little-known languages into international priorities almost overnight. And broad access to services for education, language-related disorders, and aging requires the ability to flexibly adapt tools from "high resource" languages like English, Spanish, and Chinese to countless other languages. These practical needs are all informed by a central scientific puzzle: in the domain of language learning, a typical 6-year old leaves Google's computers in the dust. What is it about young human brains that allows them to outperform technologies that are built on huge corporate investments? Answers to these questions require collaboration between experts from very different traditions, ranging from fieldworkers to engineers to neuroscientists.

Ideal for a U21 initiative. (i) Language Science is necessarily global, and globally necessary. (ii) All U21 partners can make unique contributions. (iii) Broad reach within institutions. (iv) 'First mover' advantage: U21 can make a big difference in an emerging interdisciplinary area.

Why U21? Why build a field via an alliance of institutions, rather than via individual researchers, departments, bilateral or professional organizations?

- (i) Opportunity. Partnership between leading institutions, world-class researchers, and creative students can achieve far more than they could individually. U21 is a facilitator.
- (ii) Luck. U21 has unique strength in Language Science, better than any other alliance.

Impact & Scale. For Language Science. GRAIL would be internationally highly visible in language science, signaling an interdisciplinary shift that would have impact well beyond U21.

For institutions. GRAIL has broad reach within institutions, and it develops a scalable model for partnership between researchers, students, and administration.

For U21. GRAIL engages diverse groups in a U21-led initiative, raising the network's profile.

Strategies and Activities. Research does not change overnight. Lasting change requires sustained effort; sustainable partnerships require trust; and researchers are skeptical of “arranged marriages”. But institutions and their stakeholders expect rapid change, and need external visibility. This tension guides the strategy for GRAIL. We focus on activities that yield near-term, visible outcomes while building longer-term trust between researchers across diverse locations and fields. This translates into 4 types of activities:

1. Research that integrates diverse languages, approaches, or applications.
2. Integrating student mobility with research (“research ambassadors”)
3. Global labs and classrooms: international engagement without international travel
4. Public-facing activities: broad outreach, and targeted engagement with policymakers

Management. The long-term success of GRAIL depends on distributed leadership, across institutions and continents and areas of expertise. It must not be tied to a single institution. The U of Maryland can commit significant effort to initial coordination, via its Language Science Center (director: Colin Phillips) and Office of International Affairs (director: Ross Lewin). But many other institutions will play key roles (researchers, students, and leadership), and a primary goal is to create broad leadership that can evolve as the initiative grows.

Sustainability. Universities, researchers, and students are motivated by (i) interest, (ii) recognition, (iii) funding, and (iv) avoiding obstacles. The long-term success of a global initiative requires all four, and so the goal of the initial period of GRAIL is to build momentum by developing all of these. Researchers play a central role in (i)-(iii), institutions are essential for (ii)-(iv). The long-term success of GRAIL will depend on collaboration at all levels.

Requests for Support. The success of this experiment depends on a combination of institutional engagement and on startup funding. And the cliché is true: you get what you pay for -- in investment of funds and energy. Language Science has a lower cost than many other big challenges, but global change cannot be had for \$100k/year.

Coordination Funds. Full-time PhD-level Assistant Director, plus IT and communications, and travel to allow institutions to collaboratively develop the model. [\$150k - \$200k/year]

Student Research Ambassadors. Low-cost relative to impact. Depends on integration with existing institutional funding sources, ideally enhanced through GRAIL-specific incentives.

Research, Global Labs/Classrooms, Research Workshops, Public-facing Summits. The first question that researchers ask is: how do we pay for this, and what should we sacrifice? Many individual activities could contribute to GRAIL's success, with costs ranging from \$5k to \$50k.

Collaborative Fundraising. Researchers direct their grant-writing efforts to projects that are the most interesting, prestigious, or feasible. Fund-raising between institutions would make it attractive to target U21 projects. We can target (i) foundations/donors who are open to moving funds across borders, and (ii) using national influence to create international funding streams.

Institutional Effort. The success of an initiative like GRAIL depends on engagement of staff and leaders at all levels of an institution.

Progress to date

(i) Extensive planning discussions within and between institutions, at the level of researchers and institutional leadership. [See table below] This has already generated considerable interest, and has led to new cross-discipline discussions within many institutions.

(ii) [Detailed planning document](#), shared among researchers. [March 2015]

(iii) [Crowd-sourced slides](#) including many institutional profiles [Summer 2014] and [presentation to U21 Research Leaders](#) [Shanghai, March 2015]

Institution	Senior Admin Contact	Researcher Contact	Existing Connections
Amsterdam	yes	yes	yes
Auckland	yes	yes	yes
Birmingham	yes	yes	yes
British Columbia	yes	yes	yes
Chile	yes	yes	yes
Connecticut	yes	yes	yes
Delhi		yes	yes
Dublin	yes		yes
Edinburgh	yes	yes	yes
Glasgow	yes		yes
Hong Kong U	yes	yes	yes
Johannesburg	yes		
Lund	yes	yes	yes
Maryland	yes	yes	yes
McGill	yes	yes	yes
Melbourne	yes	yes	yes
Monterrey	yes		
Nottingham		yes	yes
Ohio State	yes	yes	yes
Queensland	yes	yes	yes
Shanghai Jiao Tong	yes		
Singapore	yes	yes	yes

U21 institutions not yet reached: Fudan, Korea U, New S. Wales

Many possibilities for additional partnerships to universities, governments, and industry.