



Generating Impact Narratives

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What is Research Impact

- **The Australian Research Council (ARC) describes it as:**
 - Research impact is the contribution that research makes to the economy, society, environment or culture, beyond the contribution to academic research.
- **University of York, UK stated:**
 - The type of impact your research might have is specific to each project and therefore, like research, impact is wide ranging and varied. Some of the key areas of research impact include;
 - *Cultural impact*
 - *Economic impact*
 - *Environmental impact*
 - *Social impact*
 - *Impact on health and wellbeing*
 - *Policy influence and change*
 - *Legal impact*
 - *Technological developments*

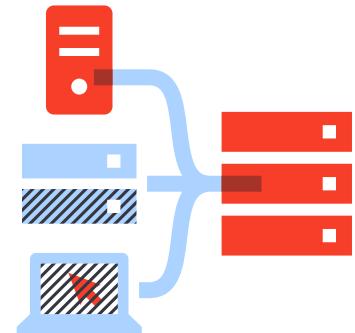
Challenges related to understanding and demonstrating impact

- Research impact is **diverse** and **societal impact is hard to define**
- The current method, impact case studies, is **labor-intensive** and a **large administrative burden**
- Data and insights around research and societal impact found in **many different forms and sources**
- Existing solutions are **not integrated into user workflows**
- The **narrative** to help demonstrate impact is more important than the metrics in some regions



Value of different data sources

- Academic impact through **bibliometrics**
- **Alternative metrics** can be used for a variety of purposes:
 - demonstrating expertise, outreach & engagement, knowledge transfer and innovation
- **Policy Citations** - more easily understood
 - connected to potential impact on society through influencing policy making
- **Patents** - a view into the innovation pipeline
- **Media mentions**
- **Social Media metrics**



Academic leaders want more holistic and consistent research evaluation

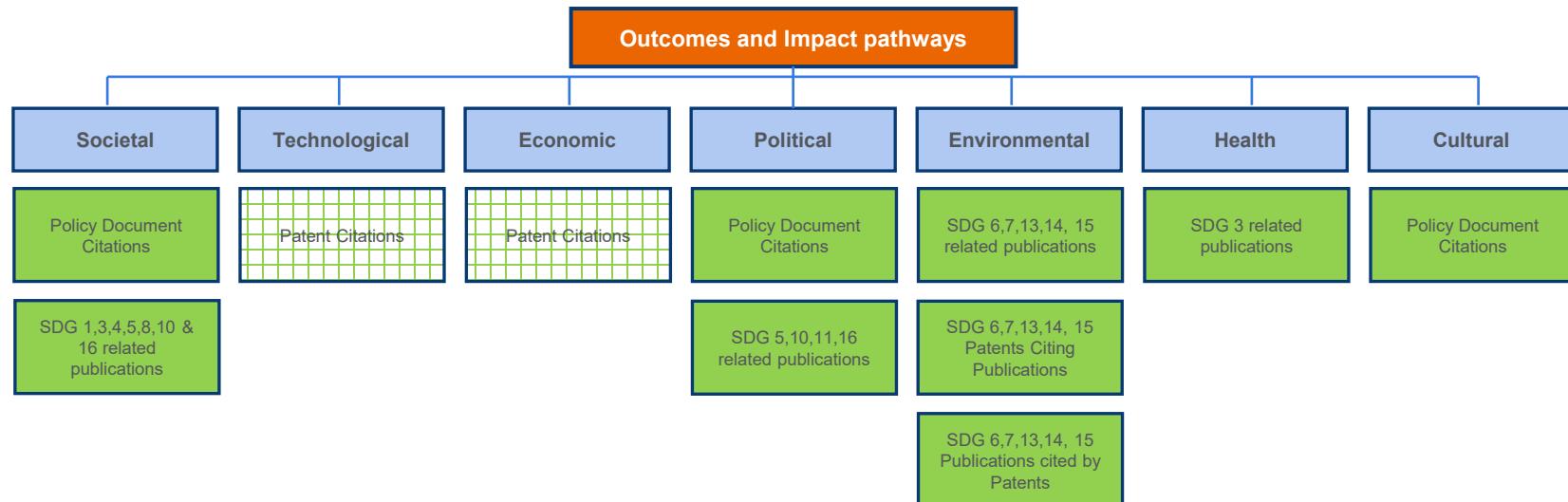


Key findings

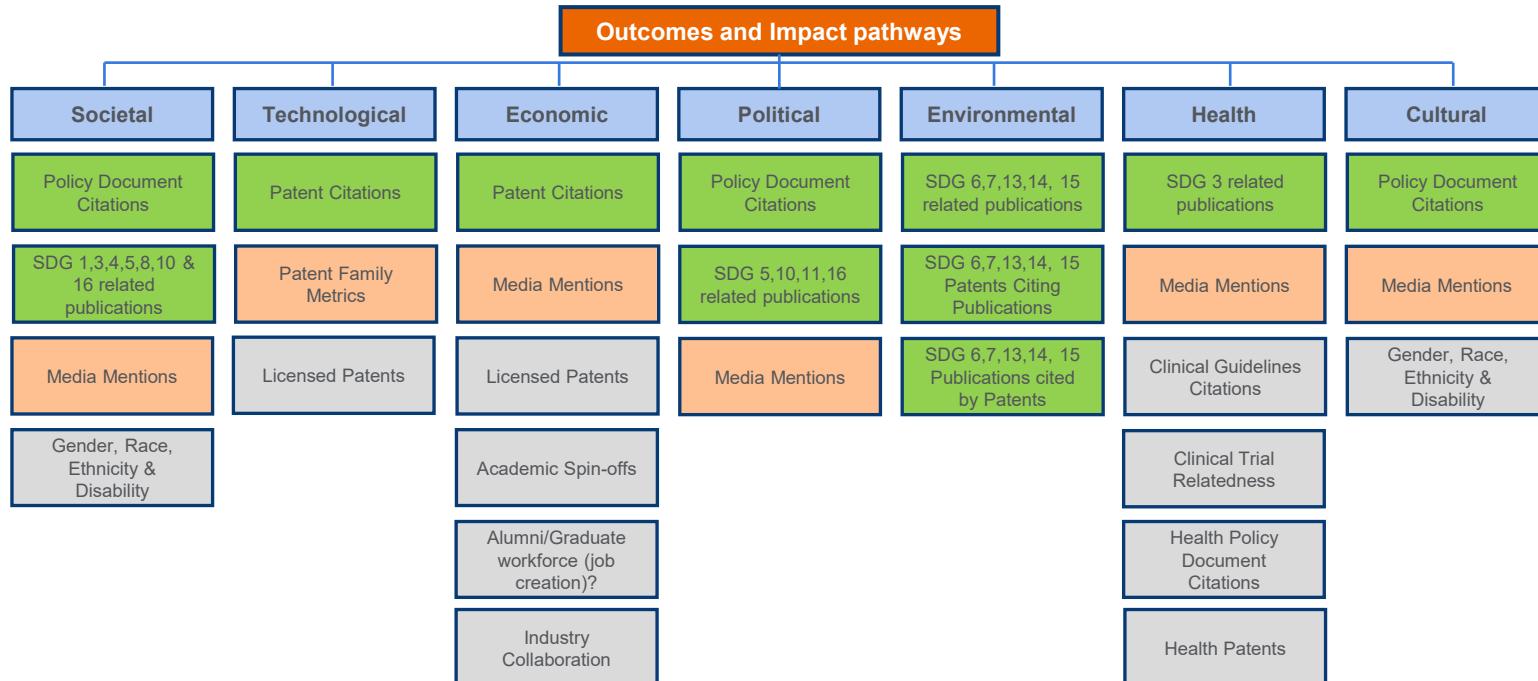
- **66%** say academia has a moral responsibility to incorporate real-world impact into standard research evaluation
- **70%** are passionate about research that has a positive real-world impact
- **53%** say a more holistic approach to evaluation would improve research cost-effectiveness
- **51%** of respondents identified at least one serious problem with current methods of research evaluation



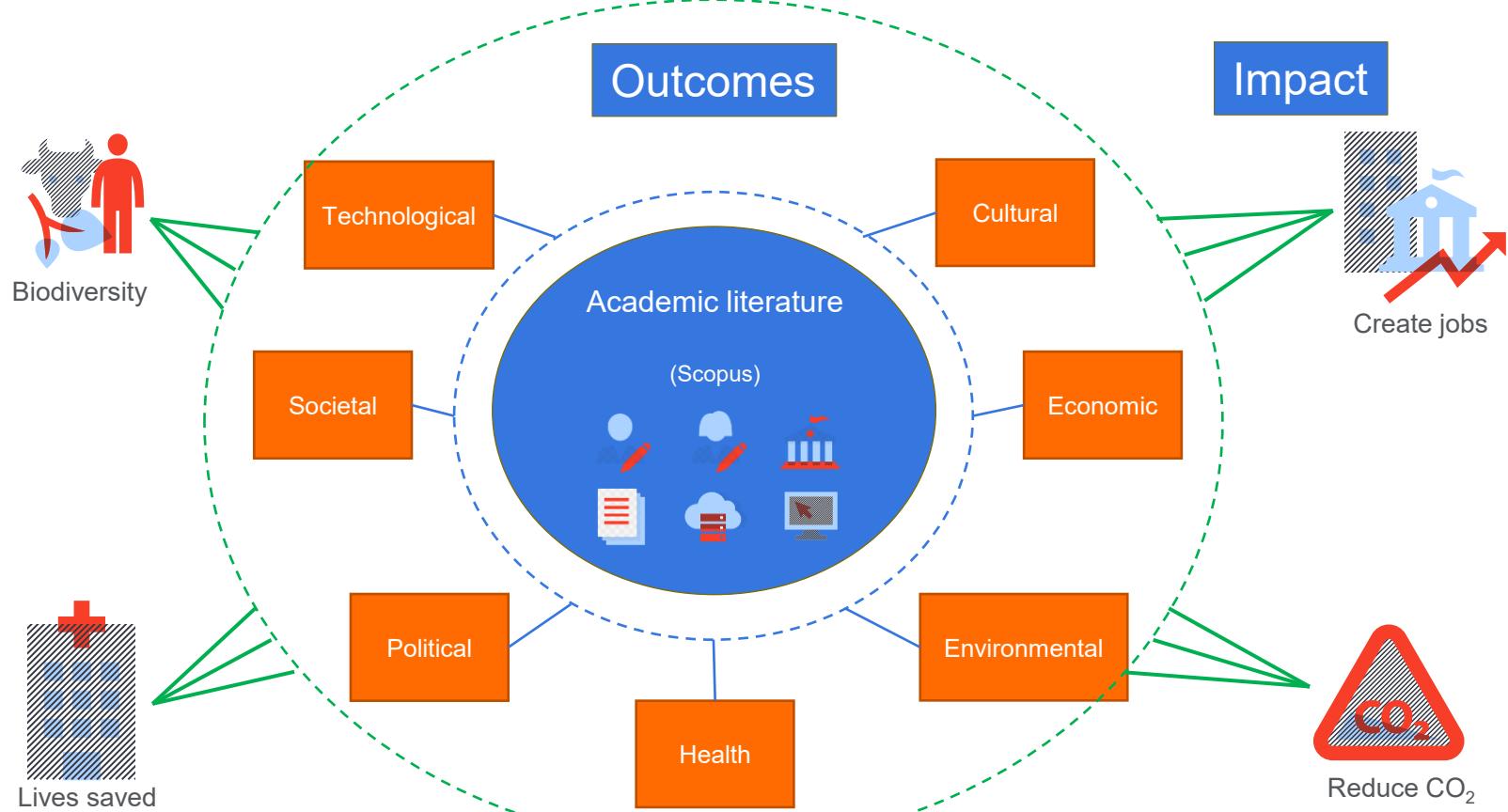
Impact analytics data we can use



Vision for Impact Analytics



Our ambition





But Charity.....

What does this have to do with
AI??

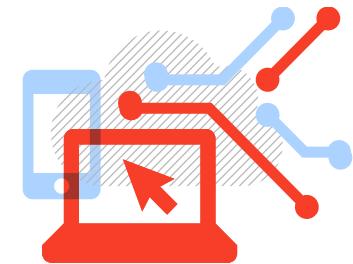
Generating impact narratives with AI



This is a new way to tell the story of impact,
using plain language and through the lens
of research characteristics that the public can understand.

This is an independent capability useful to Funders, Institutions and Researchers

- Uses characteristics of research to describe impact
- The Generative AI is used to produce impact narratives around each characteristic
- Each characteristic can be measured via a set of existing metrics
- Complementary to existing impact frameworks
- Independent of geography, impact type or discipline
- Can be used to identify high impact research projects





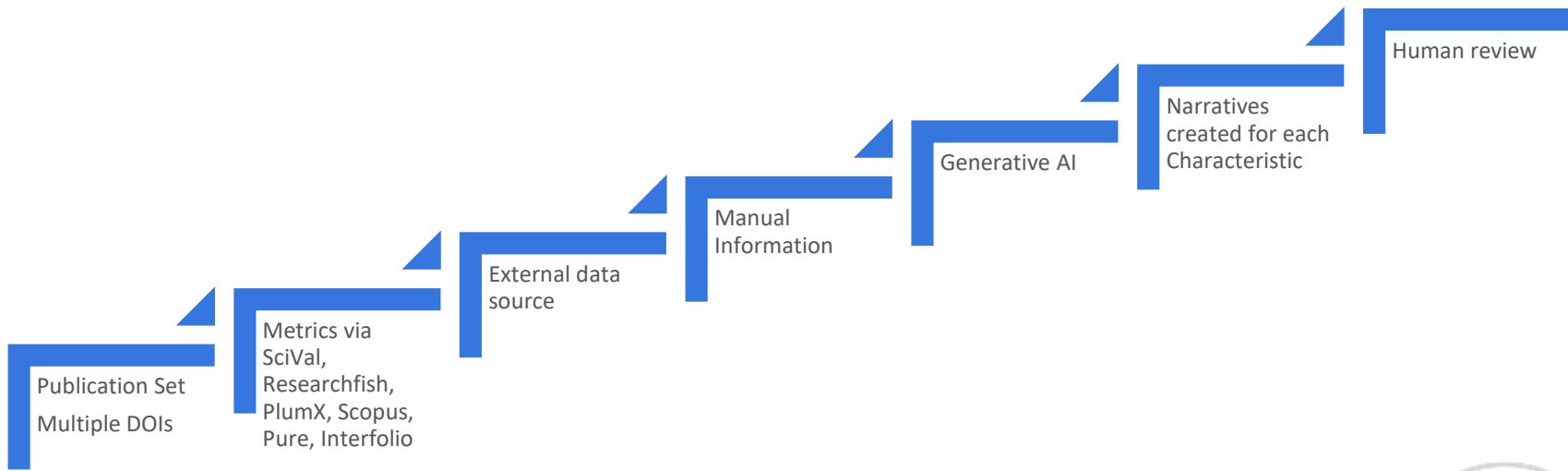
Charity.....

You said plain language I could
understand.....

What are research characteristics?

 Significance Assessing the potential significance of research in addressing real-world problems	 Reach Measuring the audience and potential impact of research	 Tangibility Evaluating the practical and tangible outcomes of research
 Novelty Examining how research contributes to new and innovative ideas	 Durability Assessing the potential long-term impact and sustainability of research	 Collaboration Evaluating the extent of collaboration and partnership in research
 Transferability Measuring the potential for research to be applied in other contexts or disciplines	 Policy relevance Evaluating how research contributes to the development of policy and decision-making	 Engagement Assessing the level of engagement and involvement of stakeholders in the research process

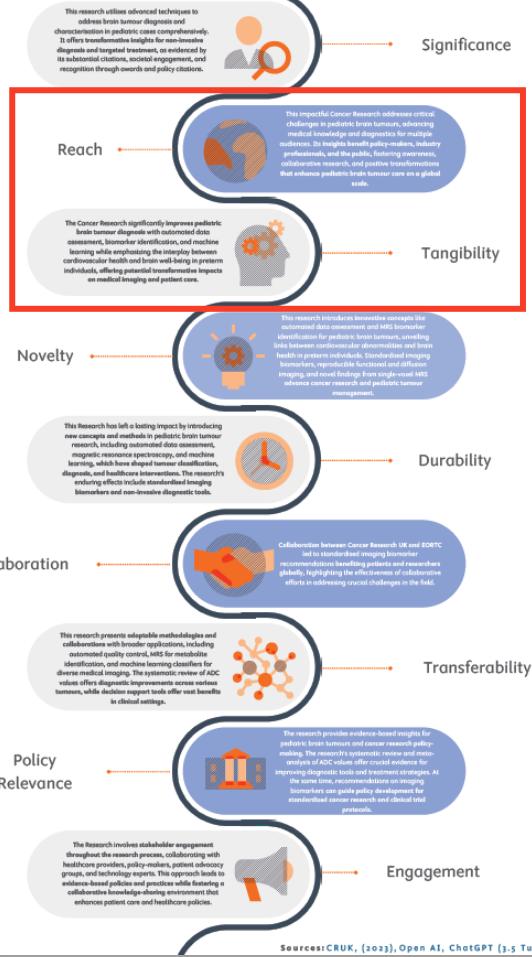
How does it work?



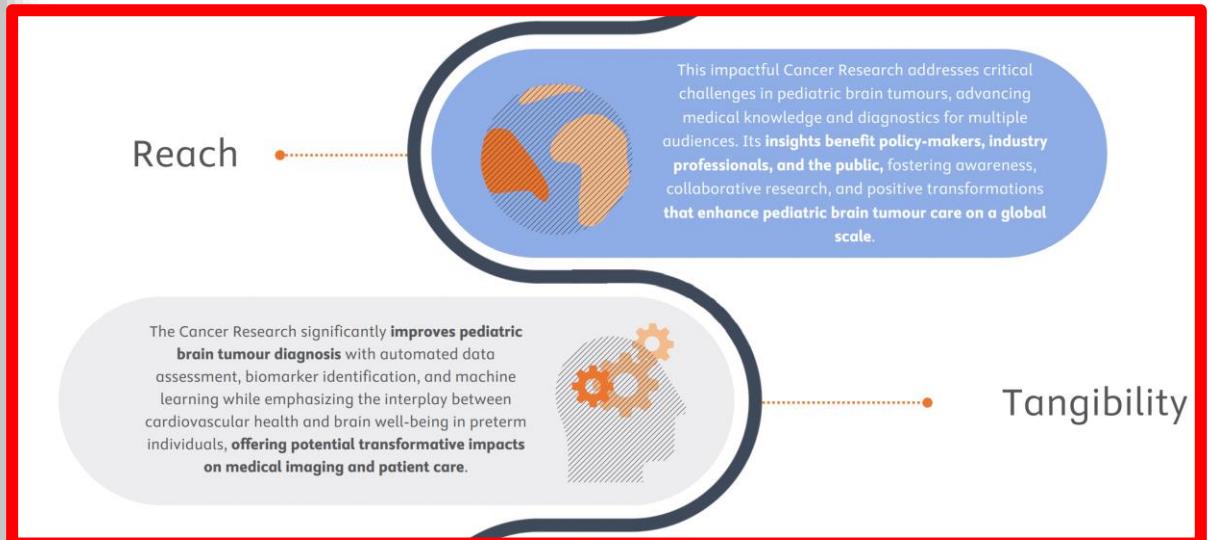


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Impact Characteristics



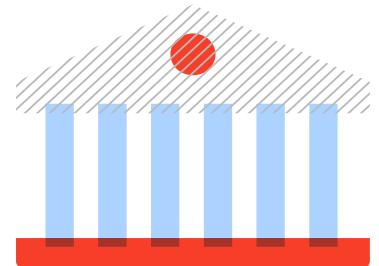
This is an example of an automatically generated infographic, based on a project funded by UK Cancer Organisation



[Link to file](#)

Why do I care?

- Funders:
 - Predictive analytics
 - Evaluation of ROI
 - Creation of impact reports, infographics
 - Donor communications
- Universities
 - As above and can track and incentivize early impact monitoring and build impact in at the beginning of any project
 - Can use in support of National assessments (REF already uses Significance, Reach and Engagement)
 - Useful in recruitment, fund raising, marketing, engagement with the public
 - Building impact case studies



Some examples of impact narratives

- Over 80% of our research projects directly address one or more of the United Nations Sustainable Development Goals (SDGs).
- Our publications have been cited over 10,000 times in peer-reviewed journals, reflecting their influence and importance within the academic community.
- Implementation of policy recommendations from our research has led to a 20% reduction in carbon emissions in urban areas where our findings were applied.
- Our community health intervention programs have reached over 50,000 individuals, resulting in measurable improvements in health outcomes and quality of life.

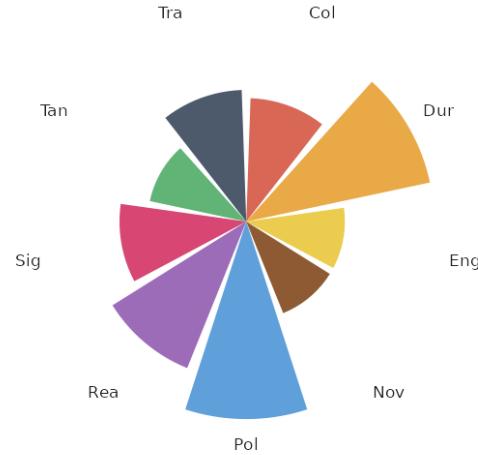
More examples, but are they convincing?

- Our publications are primarily cited within niche academic circles, with limited impact beyond the specific fields of study they address.
- The topics we explore may be of interest to specialized audiences but may not have broad relevance or applicability to wider societal issues.
- Our research collaborations tend to be within small, specialized academic networks rather than spanning across diverse sectors or global regions.
- Our online resources and publications have a modest audience, with limited engagement and interaction compared to more widely recognized research initiatives.



Understanding the magnitude of the characteristics

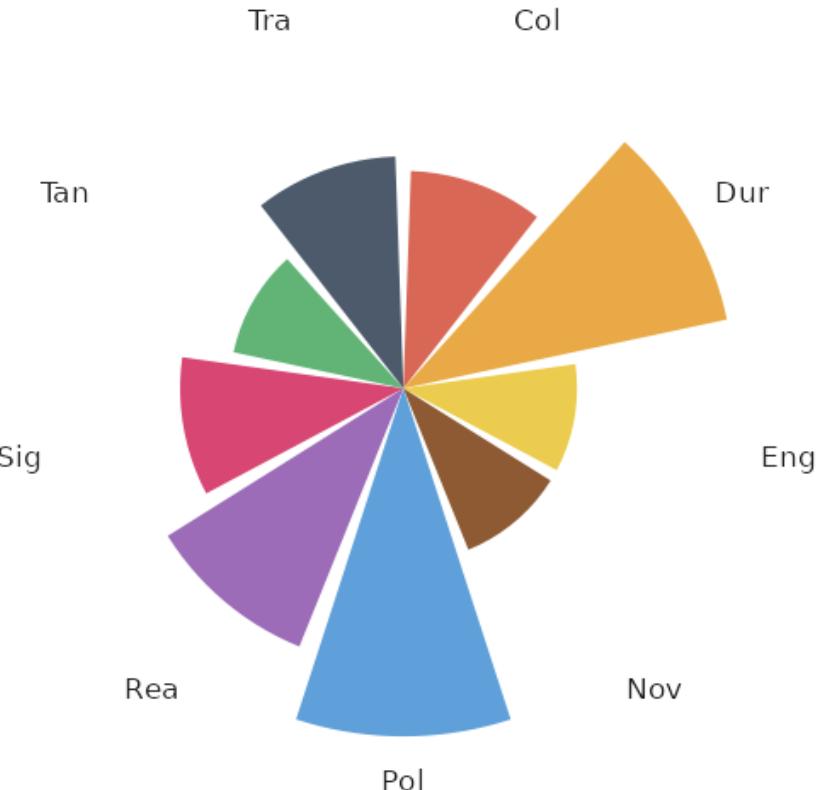
- Each characteristic can be evidenced from existing data
- Some of the underlying metrics have average values, against which we can benchmark
- Each characteristic is calculated from a basket of metrics





We can visualize it

- Each characteristic is supported by many existing metrics found within Elsevier platforms
- The widget gives an at-a-glance impression of the state of the research today
- This example uses an exploded pie chart, which looks pretty





Impactful Research Characteristics

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Descriptions of the impactful research of NIH case studies across several characteristics.



Select Case Study

P01HD039521

Oracy / Literacy Development in Spanish-Speaking Children



Description of Research

The body of research presented primarily focuses on the linguistic development, reading, and language achievement of native Spanish-speaking children, specifically those transitioning to English language proficiency in the U.S. One significant revelation from these studies is the vital role early intervention plays in preventing reading failure among these children, especially when using proven instructional techniques. Moreover, the understanding of phonological processes (like awareness and memory) has been highlighted as crucial in the early literacy development of both English and Spanish-speaking preschoolers. Another key observation pertains to the diverse linguistic capabilities of bilingual children, where a one-size-fits-all classification (simply English learners vs. proficient students) may not be adequate. This underlines the importance of comprehensive evaluations in both languages to truly understand a bilingual child's needs. On the assessment front, the studies caution against using only one language for assessment, as it might lead to misidentifications, particularly when the assessment language doesn't match the instructional language. Additionally, while socioeconomic status, indexed via maternal education, is often deemed a dominant factor in language development, its impact on the linguistic skills of English Language Learners (ELLs) may be less pronounced than previously believed, especially in Spanish language contexts. Overall, these findings collectively advocate for more nuanced, evidence-based approaches in educational and clinical settings to ensure optimal outcomes for bilingual students.



Description of Evidence

Citations are the key characteristic in terms of significance, with 683 citations indicating recognition and impact within the scholarly community. The Cites per pub value is also noteworthy, with 56.9, indicating a high average number of citations per publication.

Metric	Value	Country.Value
Average FWCI	1.7	1.3
Citations	683	679534
Cites per pub	56.9	9.5
National pubs	9	28516
National pubs per cent	75	30.8
News mentions	0	81563
News mentions per pub	0	1.1
Patent families	0	501
Patent family per pub	0	0
Policy cites	4	12439
Policy cites per pub	0.3	0.2
Publications	12	71612
Wikipedia mentions	0	1608
Wikipedia per pub	0	0

Showing 1 to 14 of 14 entries

We have built a prototype dashboard

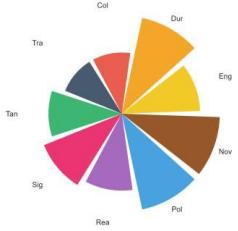
Case Study

Given 20 Blind projects, identify the 10 with the highest impact

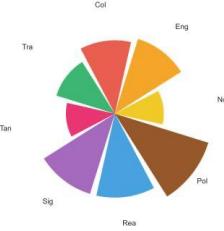
Source: NIH Reporter



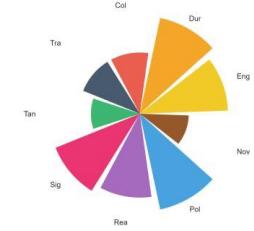
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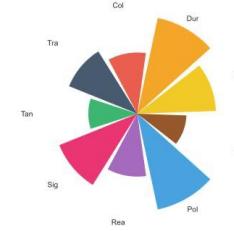
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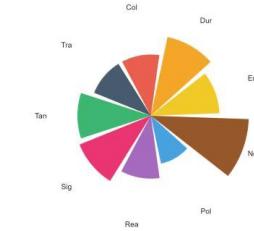
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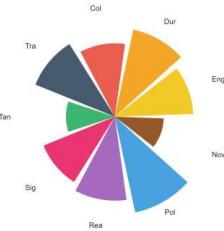
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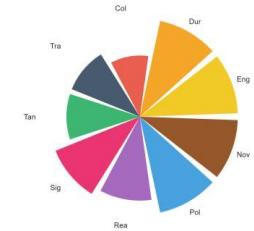
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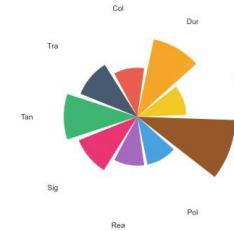
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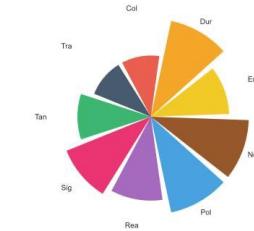
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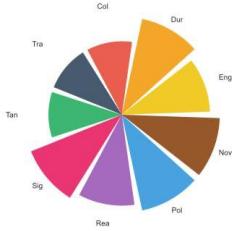
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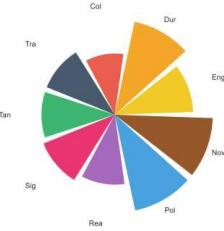
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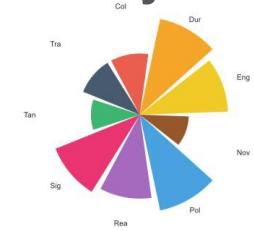
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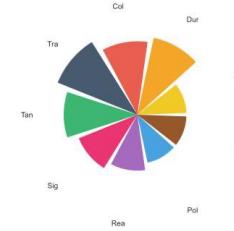
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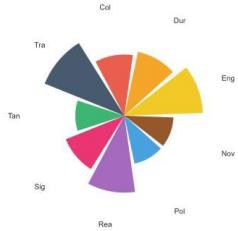
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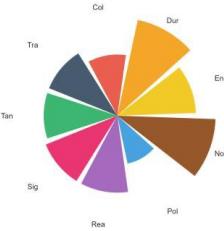
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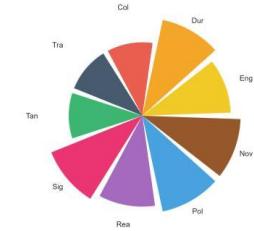
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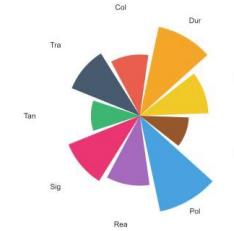
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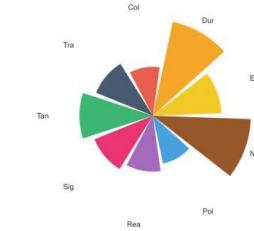
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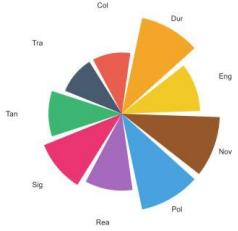


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Visualisation of 20 anonymous NIH case studies

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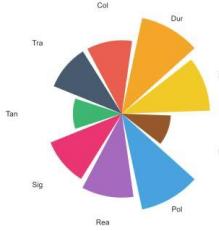
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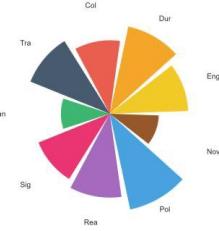
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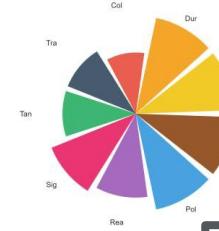
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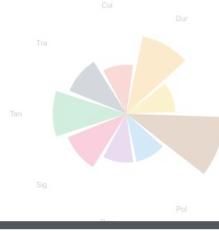
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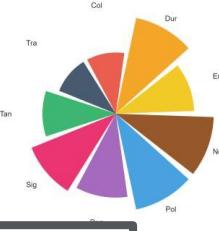
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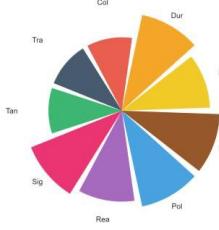
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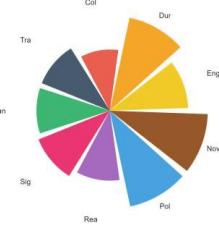
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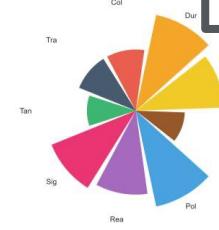
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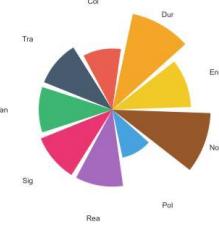
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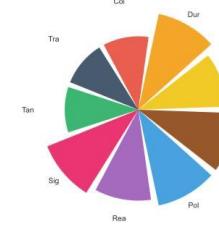
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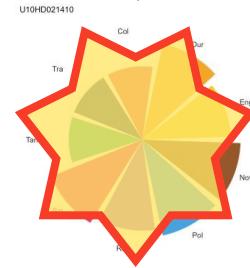
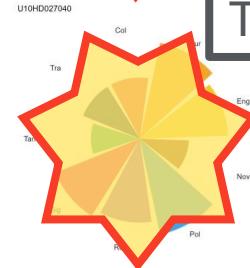
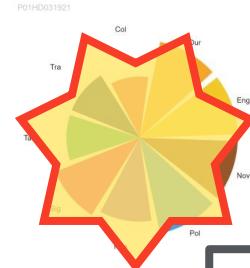
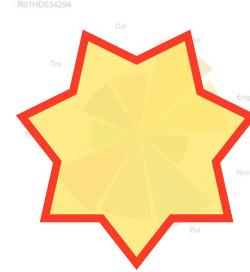
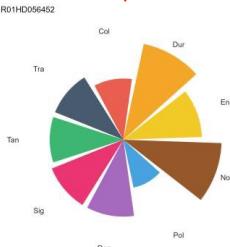
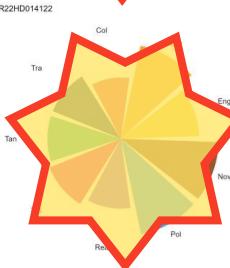
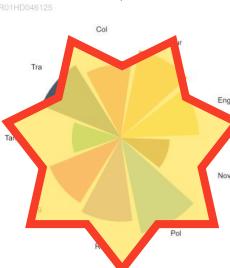
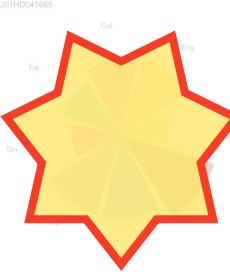
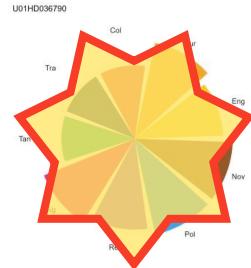
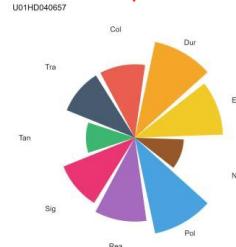
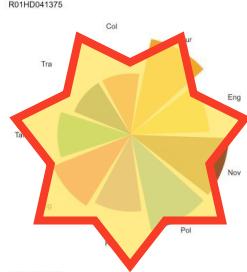
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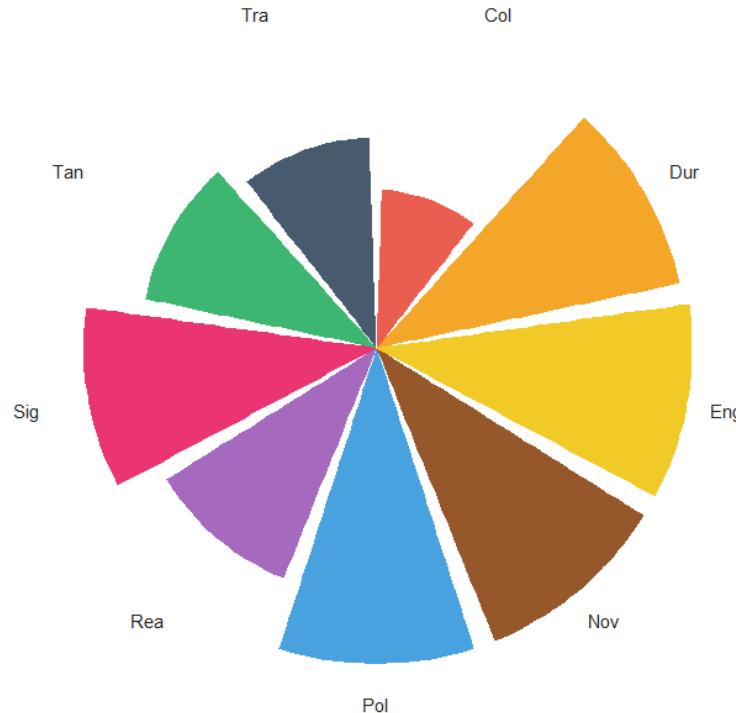


Top 10 as chosen by the system



Top 10 as chosen by NIH

Einstein's Theory of Relativity Impact Widget



“It is strange to be known so
universally and yet to be so lonely”
Albert Einstein

Is this for you?

Universities

- Wanting to tell their story of impact, beyond the institution

Funders

- Long term desire to be able to tell the story of their impact on society

Why is this approach novel?

- Elsevier's broad and deep data resources are the best available
- The characteristics-based approach is non-threatening and easy to understand
- We are combining both metrics and narrative data using AI to address the nuanced challenge of explaining and measuring research impact.

Thank you

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