**Linguistic and Conceptual Barriers that Hamper Effective Communication with Policymakers**

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Text version of presentation for 2015 KT Conference: KT Solutions for Overcoming Barriers to Research Use

Conference information: http://ktdrr.org/conference2015

Slide template: Red Bar at top and bottom. On the top right: An Online Conference for NIDILRR Grantees. Green bar in middle: Knowledge Translation Conference KT Solutions for Overcoming Barriers to Research Use

Hosted by SEDL’s Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR) October 26-28-30, 2015

**Slide 1:** **Linguistic and Conceptual Barriers that Hamper Effective Communication with Policy Makers**

KT Solutions for Overcoming Barriers to Research Use Conference KTDRR

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*Funded by NIDILRR, ACL/DHHS PR# 90DP0054*

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**Slide 2:**

“The single biggest problem in communication is the *illusion* that it has taken place”

- George Bernard Shaw

**Slide 3: What’s this talk about?**

* It’s about RELEVANCE!
	+ Relevance is key to effective communication.
	+ Policy makers & implementers are especially attuned to relevance for their constituents.
	+ Achieving relevance requires *rigor* in determining what new knowledge to generate and how then to communicate it.
	+ BUT . . . You still won’t control the consequences!

**Slide 4: Increasing Levels of Noise to Signal**

* Policy makers implementers – *Constantly bombarded with new knowledge from innumerable sources.*
	+ New knowledge communicated *to them* for their adaptation, adoption and application.
	+ New knowledge communicated by them for adaptation, adoption and application by others.
	+ Americans are estimated to receive an average of 74 gigabytes (9 DVDs worth) of new information each day!

<http://www.marshall.usc.edu/faculty/centers/ctm/research/how-much-media>

**Slide 5: How do policy-level actors sort through the constant stream of noise to detect meaningful signals?**

Photo of statue of a woman pulling her hair.Photo courtesy of Joseph P. Lane, Rijksmuseum, Amsterdam

**Slide 6: How do you ensure your messages reach and influence those who make and implement policies?**

Photo of a statue of a man curled into a ball.

Photo courtesy of Joseph P. Lane, INRS, Montreal

**Slide 7: Relevance is a two-way street: We have to use shared terminology to communicate.**

* + Scholars are trained in the shared language of scientific research but other stakeholders are not.
	+ Scholars pursuing fundamental discoveries may be content to operate within their referent peer group.
	+ However, those sponsored by programs intending societal benefit bear additional responsibility for framing their activity into the context of the broader society in which they contribute.
	+ As national and program budgets shrink, effective communication is critical to preserving the flow of public funding.

**Slide 8: Scientific Research is assumed to benefit society through two related pathways.**

* + Basic research is initiated by autonomous scholars and contributes to the global knowledge base as a reservoir of knowledge regarding the fundamental forces and mechanisms of our existence. Societal benefit occurs indirectly, serendipitously and over long timeframes, independent of that investigator.
	+ Applied research is initiated by engaged scholars who explore subject matter related to solving specific problems. Societal benefit occurs directly, intentionally and over short timeframes, likely involving that investigator.
	+ The distinction is misleading because investigator intent does not determine actual future application – relevance does. And that relevance requires *much more* input from other skills and sectors!

**Slide 9: The U.S. Catalogue of Federal Regulations (CFR) defines/differentiates Research from Development.**

*34 CFR 350.13 - What must a grantee do in carrying out research activity?*

*In carrying out a research activity under this program, a grantee shall—*

*(a) Identify one or more hypotheses; and*

*(b) Based on the hypotheses identified, perform an intensive systematic study directed toward—*

*(1) New or full scientific knowledge; or*

*(2) Understanding of the subject or problem studied.*

*34 CFR 350.16 - What must a grantee do in carrying out development activity?*

*In carrying out a development activity under this program, a grantee must use knowledge and understanding gained from research to create materials, devices, systems, or methods beneficial to the target population, including design and development of prototypes and processes.*

**Slide 10: Logic Model Comparison of Research Activity & Development Activity**

Table with 6 columns and 4 rows:

Column headings left to right: 34 CFR 50; Input; 🡪; Process; 🡪

Row 1: Research activity

Row 2: - ; Identify Hypotehesis; 🡪; Systematic Study to Test; 🡪 Subject/Problem Understanding.

Row 3: Development Activity

Row 4: - ; Research-based Understanding; 🡪; Creation Activity; 🡪; Materials, Devices, Systems, Methods.

**Slide 11: Societal benefit derived from *technology-based* solutions requires new knowledge in 3 distinct “states”:**

1. State of Conceptual Discoveries – arising from Scientific Research methodologies.
2. State of Prototype Inventions – arising from Engineering Development methodologies.
3. State of Commercial Innovations – arising from Industrial Production methodologies.
4. Each state has unique attributes.

Lane, JP and Flagg, JL, (2010).[Translating three states of knowledge--discovery, invention, and innovation](http://www.implementationscience.com/content/5/1/9), Implementation Science, 5:9.

**Slide 12: Discovery State of Knowledge**

Purpose: Scientific Research methods create new to the world knowledge.

Process: Empirical analysis reveals novel insights regarding key variables, precipitated by push of curiosity or pull of gap in field.

Output: Conceptual Discovery expressed as manuscript or presentation – the ‘know what.’

Legal IP Status: Copyright protection only.

Value: Novelty as first articulation of a new relationship/effect contributed to knowledge base.

**Slide 13: Invention State of Knowledge**

Purpose: Engineering Development methods combine/apply knowledge as functional artifacts.

Process: Trial and error experimentation/testing demonstrates proof-of-concept, initiated through opportunity supply or operational demand forces.

Output: Prototype Invention claimed and embodied as functional prototype - the ‘know how.’

Legal IP Status: Patent protection.

Value: Feasibility of tangible invention as a demonstration of the Novelty of concept.

**Slide 14: Innovation State of Knowledge**

Purpose: Industrial Production methods codify knowledge in products/components positioned as new/improved products/services in the marketplace.

Process: Systematic specification of components and attributes yields final form.

Output: Market Innovation embodied as viable device/service in a defined context, initiated through a commercial market opportunity – ‘know why.’

Legal IP Status: Trademark protection.

Value: Utility defined as revenue to company and function to customers + Novelty + Feasibility

**Slide 15: Innovation & Impact requires Industry**

* Traditionally, each sector defined terms in own narrow context, unconcerned with downstream market activities or broader societal benefits, comfortable in status quo budgets and paradigms. But . . .
* U.S. National Science Board (2012) – “Innovation is defined as the introduction of new or significantly improved products (goods or services), processes organizational methods, and marketing methods, in internal business practices or in the open marketplace.” (OECD/Eurostat, 2005).
* Innovation is a business enterprise issue, so term’s use should be restricted to project outcomes with market value!

**Slide 16: All three Methods/Stages combine to generate 4 types of actionable knowledge outcomes:**

1. Industry Standards & Clinical Guidelines;
2. Analytic Instruments & Fabrication Tools;
3. Freeware (Software Applications or DIY Hardware Kits);
4. Commercial Products & Services

Stone, VI, Lane, JP, (2012)[Modeling technology innovation: How science, engineering, and industry methods can combine to generate beneficial socioeconomic impacts](http://www.implementationscience.com/content/7/1/44/abstract), Implementation Science, 7:44.

**Slide 17: Policymakers (and others) have 4 Levels of New Knowledge Engagement:**

1. Non-awareness – No clue about it . . .
2. Awareness – Zone of indifference . . .
3. Interest – Retained to explore . . .
4. Use – Active implementation . . .
	* Use as intended by creator (adopt).
	* Use as modified by actor (adapt-adopt).

Stone, V.I., Nobrega, A.R., Lane, J.P., Tomita, M.R., Usiak, D.J., Lockett, M.M., [Development of a measure of knowledge use by stakeholders in rehabilitation technology](http://smo.sagepub.com/content/2/2050312114554331.full.pdf%2Bhtml), *Sage Open Medicine*, 2014, 2, 1-19.

**Slide 18: Policymakers (and others) intent drives 3 forms of knowledge use:**

* Instrumental Use – specific and direct.
* Conceptual Use – general enlightenment.
* Strategic Use – legitimize a prior perspective.

Lane, JP, Rogers, JD, (2011). [Engaging national organizations for knowledge translation: comparative case studies in knowledge value mapping](http://www.implementationscience.com/content/6/1/106/abstract), Implementation Science 2011, 6:106.

**Slide 19: Assumptions underlying Knowledge Translation:**

* All KT/KTA models from CIHR assume inherent relevance and value within scientific research findings.

 I. Graham et al (2006). Lost in KT? <http://www.ncbi.nlm.nih.gov/pubmed/16557505>

* A persistent ‘lack of absorptive capacity’ amongst non-academic stakeholders.

 R. Parent (2010) [CIHR - http://www.cihr-irsc.gc.ca/e/42001.html](http://www.cihr-irsc.gc.ca/e/42001.html)

* Engaging stakeholders at any point after a project commences is sufficient to initiate successful translation.

 CIHR (2015) <http://www.cihr-irsc.gc.ca/e/45321.html>

**Slide 20: RCT series to test KT assumptions:**

* Three studies conducted using published findings from different fields (AAC, Mobility, Recreation) judged to have potential stakeholder relevance;
* Comparing the relative effectiveness of three communication methods (Diffusion, Dissemination & Translation);
* Applied across five stakeholder groups (Researchers, Clinicians, Consumers, Manufacturers, Brokers).

Stone, Lane *et al* (2015). Effectively communicating knowledge to AT stakeholders: Three RCT case studies. *Assistive Technology Outcomes & Benefits*, 9, 1. <http://atia.org/i4a/pages/index.cfm?pageID=4646>

Lane, JP, Rogers, JD, (2011). [Engaging national organizations for knowledge translation: comparative case studies in knowledge value mapping](http://www.implementationscience.com/content/6/1/106/abstract), Implementation Science 2011, 6:106.

**Slide 21: RCT Results Show?**

* Both Dissemination and Translation are effective at moving people up the continuum from unawareness to interest and towards actual use.
* However - they are both equally effective for most audiences! It seems the language and format are not the critical factors.
* Stakeholders were able to extract the message of utility even from scholarly journal publications.
* Further, people in groups with the highest ‘stake’ in each item demonstrated higher levels of use.
* RCT’s demonstrate that relevance drives use.

**Slide 22: KT – Blaming the Victim?**

It may be easier to blame a lack of comprehension than assume responsibility for ensuring that studies and findings are relevant.

*Insufficient absorptive capacity . . . indeed!*

Photo of a statue of Academician Andrei Sakharov.

Photo courtesy of Joseph P. Lane, INRS, Montreal

**Slide 23: Two neglected factors drive uptake and use.**

1. *The Power of Personal Incentives*
2. *The Law of Unintended Consequences.*

S.D. Levitt & S.J. Dubner. Freakonomics (2005) &

Superfreakonomics (2009). [www.freaknonomics.com](http://www.freaknonomics.com)

**Slide 24: Lesson: Relevance drives communication!**

* Ensure proper use of terminology recognized by both internal and external stakeholder groups (e.g., Science versus Engineering rather than R&D).
* Address the influence of Personal Incentives on intended (and unintended) use prior to knowledge creation.
* Only *Prior to Grant KT* (not *Integrated* or *End of Grant*) can ensure relevance and anticipate unintended consequences.

Lane, JP and Flagg, JL, (2010) [Translating three states of knowledge--discovery, invention, and innovation](http://www.implementationscience.com/content/5/1/9), Implementation Science, 5:9.

Photos courtesy of Joseph P. Lane, covers of personal books

**Slide 25: ACKNOWLEDGEMENT**
The contents were created under a cooperative agreement from the
National Institute on Disability, Independent Living, and Rehabilitation Research (#90DP0054).  NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS).

Photo of silhouettes of people.