PASTA: A PROPOSAL FOR AN "OPEN TAXONOMY" OF SCIENCE COMMUNICATION PRACTICES TO OVERCOME THE LIMITS OF SCICOMM MODELS

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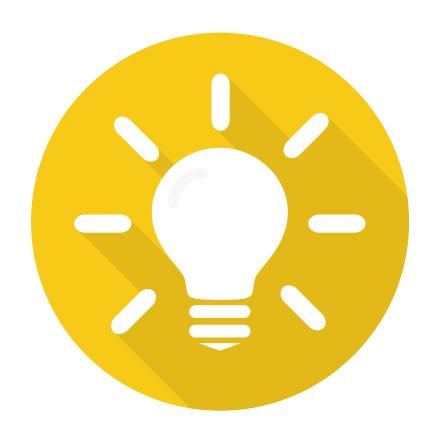ULB | ReSIC CENTRE DE RECHERCHE EN INFORMATION ET COMMUNICATION

OPEN TAXONOMY AS AN ALTERNATIVE TO SCICOMM MODELS

To overcome the complexity introduced by the multifaceted nature of the science communication ecosystem, we proposed a taxonomy based on literature review, to categorize different types of interactions between science and society. While some practices can fall into existing and well-known science communication models (like deficit, dialogue or participation) the emerging of new scicomm practices, new publics and new technologies can be better described with an open taxonomy, where practices used to communicate scientific content can be classified from a set of properties, and not necessarily by a correspondence to a known model. Under this reference framework, different practices of science communication, laying on the overlap of multiple models, can be described, designed and defined using five parameters or "axes": Paradigms, Actors, Strategies, Target and Agenda, that can be summarized in the mnemonic PASTA acronym.

FIVE PARAMETERS TO CATEGORIZE AND ANALYZE SCICOMM PRACTICES

Paradigm

The implicit theoretical, operational or sociological hypothesis on which a scicomm practice is based

Bucchi (2008), Kuhn (1962)

Actors

Science communicators and publics concerned by a specific scicomm practice

Akin & Scheufele (2017), Bucchi & Trench (2016), Davies & Horst (2016)

Strategy

Operational approach shaping the activities performed in a scicomm practice

Bauer (2009), Borchelt and Nielsen (2014), Hallahan et al. (2007)

Target

Destination of the communication flow between the stakeholders participating to a scicomm practice

De Pelsmacker (2015), Kuehne (2014)

Agenda

The set of topics, goals and dissemination objectives which constitutes the focus of a scicomm practice

Fahy & Nisbet (2011), McCombs et al. (2014)

KNOWN SCICOMM PRACTICES DESCRIBED WITH THE "PASTA" TAXONOMY

Practice	Paradigm	Actors	Strategy	Target	Agenda
Science deficit (dissemination)	There is a knowledge gap. ▶ Public should improve scientific literacy	Science communicators and citizens	Measurement of literacy in national surveys, education	Citizens	Settled science
Science understanding (persuasion)	There is a link between public understanding of science and national prosperity. ▶ Public should improve attitudes toward science	Science communicators, public sector and citizens	Communication campaigns, education, public relations	Citizens	Adoption of new scientific and technology developments
Science dialogue (orientation)	There are raising social concerns about science ▶ Scientific community should listen to the public about their perceptions, concerns and needs about science	Science communicators and engaged public	Value lay knowledge that can help scientific progress, orienting and prioritizing scientific endeavour	Citizens and scientific experts	Public concerns and mistrust over scientific issues
Science participation (deliberation)	There is a need of a common ground between science and society ▶ Science should work with non-scientific stakeholders	Engaged publics, scientific experts, decision makers	Recognise and understand non-specialists stakeholders for knowledge co-production with scientists	Citizens and scientific experts	Issues where a social answer is needed besides a scientific answer
Science advocacy (regulation)	There are political forces promoting regulations based on science denial ▶ Science should support policies based on scientific evidence	Science communicators and decision makers	Enforce links between political debate and scientific consensus.	Policymakers and citizens	Best available knowledge to address social, medical and environmental crises
Science values (acceptation)	There is the need to reach skeptical audiences ▶ Science should find a common ground with values of the public for effective communication.	Science communicators and skeptical audiences	Make explicit the values on which scientific activity is based.	Scientific experts and skeptics	Affirm the trustworthiness of scientific endeavour

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CONCLUSIONS

PASTA taxonomy provides an alternative to the traditional classification of scicomm activities under general models like deficit, dialogue of participation. Using a flexible approach, which is practice-oriented and not model-oriented, we can count on this practical tool to define and design new activities of science communication, useful also for the analysis of existing activities on a deeper level of detail than the one provided by science communication models.