Developments in (Digital) Science Communication: Looking back at the last 20 years of new genres and new research questions

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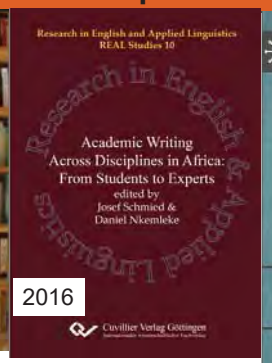
1. Background: Personal Experience

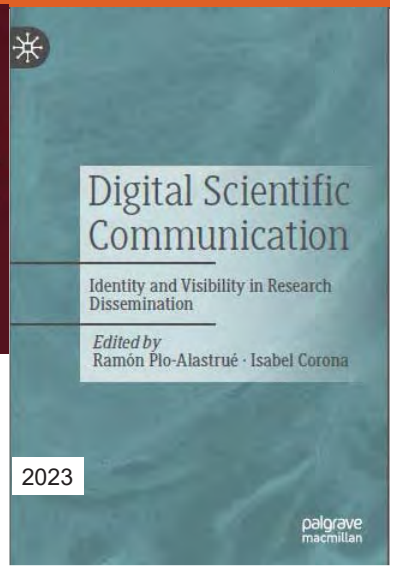
TEACHING since 1982 at Bamberg, Bayreuth, Dresden, Chemnitz
+ ERASMUS, DAAD, AvH

BIG Research Projects:

- SFB: Identity in Africa: A5 Sociolinguistics of English variation in Africa, International Corpus of English – East Africa (=Kenya, Tanzania)
- Lampeter Corpus of EModE Tracts (1640-1740) (DFG)
- Internet Grammar of English (DFG; incl. stratified English-German Translation Corpus)
- Academic & Journalistic Writing (DAAD; SE Europe, Africa, China)
- SFB/CRC: Hybrid Societies: Humans interacting with embodied digital technologies: D03 Credibility & Language Varieties: Acceptance of conversational pedagogical agents (Chinese, Italian, Czech "Accents")
- Marie Curie: BIG DATA, Emilia+ coordinated by Bologna

1. Background: 20 years research AcadWriting → SciCom publications





Ken Hyland, The "Other" English: Thoughts on EAP and Academic Writing, p. 34
Philip Shaw, Text Purpose, Text Effects, Text Power: English for Specific Purposes, p. 39
Maurizio Gotti, Creating a Corpus for the Analysis of Identity Traits in English Specialised Discourse, p. 44
Michael Hoey, Clumsy English, p. 48

1. Background: BIG Research in Chemnitz (CRC)

About Us | Research | People | Career | Contact | Events and Communication | Conference 2023

Blogs Podcasts

HYBRID SOCIETIES

12 | 120 | 8 | 236

1. Background: BIG Research in Bologna et al.

FutureData4EU

Training Future Big Data Experts for Europe

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IMPORTANT NOTICE – STEP 3 – INTERVIEW

The Evaluation Committees are completing **Step 2 – Document Evaluation** and the results will be published shortly at "FutureData4EU" website.

Candidates are hereby notified that those admitted to **Step 3 – Interview** will be convoke starting from July 23rd 2024.

As stated in the Call for Application, the interviews will be held via the Microsoft Teams platform.

Below you will find the starting dates of the interviews for each Thematic Areas:

- **TA1 – Health** – Interview start from July 23rd, 2024
- **TA2 – Culture, Creativity and Inclusive Society** – Interviews start from July 25th, 2024
- **TA3 - Civil Security for Society** – Interviews start from July 24th, 2024
- **TA4 - Digital, Industry, Space** – Interviews start from July 23rd, 2024
- **TA5 - Climate, Energy, Mobility – UPDATE - Interviews start from July 26th, 2024**
- **TA6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment** – Interviews start from July 24th, 2024
- **TA7 – Enabling Technologies** – Interviews start from July 25th, 2024

30 min/candidate:
- no ppt
- Q&A of proposal
- motivation
- career plans
- alternative projects

2. Introduction: Definition "science communication"

Answer

Search Images

Search Videos

Generate Image

Science communication can be defined as:

The organized, explicit, and intentional activities aimed at communicating scientific knowledge, methodology, processes, or practices to audiences that include non-scientists [1] [2].

This definition encompasses several key aspects:

1. It involves deliberate efforts to share scientific information, not just incidental communication.
2. The content being communicated relates to science broadly, including scientific findings, methods, and practices.
3. The target audience includes people who are not experts in the scientific topic being discussed, though it may also involve communication between scientists.
4. It can take many forms, including journalism, public events, museum exhibits, social media, and more.
5. The goals often include informing, educating, raising awareness, influencing attitudes or behaviors, and engaging diverse communities on scientific topics [3].

Some definitions also emphasize that science communication aims to produce specific responses in the audience, such as increased awareness, enjoyment, interest, opinion-formation, and understanding of science [1]. However, the field has moved beyond just a one-way transmission model to also include more dialogic and participatory approaches [2].

2. Introduction: Perplexity image "science communication"

https://mmlab.lis.ntu.edu.tw/teaching/ewExternalFiles/figure_scicomm.png (03/10/24)

2. Introduction: Perplexity "digital science communication"

Answer

Digital science communication refers to the use of digital platforms, technologies, and media to share scientific information, engage audiences, and foster dialogue about scientific topics. This emerging field has transformed traditional science communication practices in several key ways:

Platforms and Channels

Digital science communication utilizes various online platforms, including:

- Social media (e.g. Twitter, Facebook, Instagram, TikTok)
- Video sharing sites (e.g. YouTube)
- Blogs and websites
- Online forums and discussion boards
- Podcasts
- Interactive digital exhibits

These platforms allow for more direct, immediate, and widespread dissemination of scientific content compared to traditional media [1] [2].

2. Introduction: Perplexity "digital science communication"

Key Characteristics

Digital science communication is characterized by:

- **Multimodality**: Combining text, visuals, audio, and interactive elements to convey scientific information [2]
- **Two-way interaction**: Enabling direct dialogue between scientists and audiences [2]
- **Broader reach**: Overcoming geographical boundaries to reach global audiences [3]
- **Speed and immediacy**: Allowing for rapid sharing of scientific developments [3]
- **User-generated content**: Empowering non-experts to participate in scientific discussions [1]

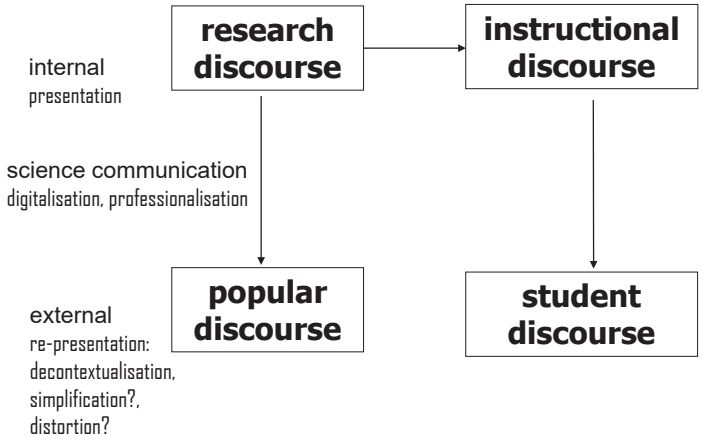
Impacts and Challenges

The digital landscape has significantly impacted science communication:

- Increased visibility and accessibility of scientific information
- Pluralization of voices in science discourse
- Potential for misinformation spread and polarization
- Need for scientists to develop digital communication skills
- Blurring boundaries between communicators, content, and audiences [3]

While digital platforms offer new opportunities for engagement, they also present challenges in maintaining content quality, managing online discussions, and adapting to rapidly evolving technologies [2].

2. Introduction: Academic Discourses



2. Introduction: Genres

NOT genres in literature: poetry, drama, novel, etc.
but text-types like "paper"=presentation, journal article … blog, podcasts … "essay", test …
in an academic discourse community

(1) Genres are recognizable communicative events, characterized by a set of communicative purposes identified and mutually understood by members of the professional or academic community in which they regularly occur.
(2) Genres are highly structured and conventionalised constructs, with constraints on allowable contributions not only in terms of the intentions one would like to give expression to and the shape they often take, but also in terms of the lexico-grammatical resources one can employ to give discoursal values to such formal features.
(3) Established members of a particular professional community will have a much greater knowledge and understanding of the use and exploitation of genres than those who are apprentices, new members or outsiders.
(4) Although genres are viewed as conventionalised constructs, expert members of the disciplinary and professional communities often exploit generic resources to express not only 'private' but also organizational intentions within the constructs of 'socially recognized communicative purposes'.
(5) Genres are reflections of disciplinary and organizational cultures, and in that sense, they focus on social actions embedded within disciplinary, professional and other institutional practices.
(6) All disciplinary and professional genres have integrity of their own, which is often identified with reference to a combination of textual, discursive and contextual factors. (Bhatia 2004: 23)

2. Introduction: Academic Discourse Genres (traditional)

"(staple) genres" as conventionalised practices (cf. Schmied 2015)

research "output"
- research article (title,abstract,keywords)
- book reviews
- project proposals
- conference presentations (abstract)

teacher genres
- presentations
  - lectures (ppt)
  - seminar discussions
- textbooks
- Moodle/Wikis/www pages

new genres

discipline-specific culture-specific

student genres ("literacy")
- fieldwork notes / essays
- seminar presentations
- BA/MA thesis

"Novice Academic English"

science "journalism"
- popular science articles
- popular blogs (David Crystal)
- popular science films (Horizon BBC 1964)
- popular science books
- science slam

author-specific culture-specific

2. Introduction: Academic Discourse Genres (new)

"new genres" as emerging practices

internal research discourse:
(cf. Plo-Alastrué et al. Eds. 2023):
- 3-minute talks/pitches → 6
- open reviews → 5
- multimodal: video abstracts
- FameLab scientific talks
- science blogs
- research group videos

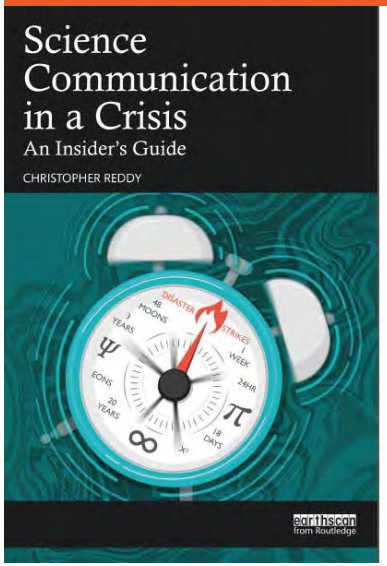
= **"broader concept"** like Illingworth & Allen (2024)

teacher genres
- ...

external knowledge dissemination:
infodemic (cf. Metag et al. Eds. 2022)
- X/Twitter Tweets for projects
- Facebook for advertising
- Instagram/TikTok personal accounts
- Youtube channel

student genres ("literacy")

3. Developments: Crises? Challenges!



Reddy (2023: 3):
"So what are the challenges that are special to science communication?
I have identified ten principal themes.
1 Career
2 Culture
3 Network
4 Speaking Out
5 Competition
6 Process
7 Misinformation
8 Legal
9 Impact
10 Teamwork"

my challenges:
1 Neoliberal frame
2 Complexity of issues
3 Digital transformation
4 Identity (personalisation - diversity)
5 Integrity (ethics)

my developments:
1 Bigger research groups?
2 Reduced visibility in "infodemic"?
3 Community standards vs. creativity?
4 Interdisciplinary + international?

3. Developments: Technological affordances & societal demands

- technical:
  rapid expansion of digital means of communication
  (cf. Plo-Alastrué & Pérez-Llantada Eds. 2015, Luzón & Pérez-Llantada Eds. 2019)
- global expansion of participation and collaboration
- societal:
  Public Science, Open Science (cf. e.g. Bondi 2023)
  accessibility, transparency
  - open data → repositories (EU CLARIN, github)
  - peer review → prepublication servers

→ "tectonic shifts": reform/reframe research and science communication

3. Developments: factors/driving forces?

2 missing factors: MONEY (neoliberal global context, cf. Pérez-Llantada 2012)
TIME

new genres in line with SciCom models: deficit → dialogic → participatory

bigger research communities → conferences → 3MT

more urgency → TIME → publication process → open review

new genres – old templates (like IMRaD)?

mind cultural differences between STEMM and SSH disciplines and traditions!

4. New Genre: 3-minute Talk (3MT)/Thesis/Pitch?

Three Minute Thesis https://threeminutethesis.uq.edu.au/resources/3mt-competitor-guide (24/10/04)

Home About Resources Competitions Watch 3MT Contact

3MT competitor guide

not only in poster introductions
compromise poster + presentation?

/ Resources

gamification? competitions/"challenges" – prizes!

Even the world's best public speakers prepare before important presentations. To assist you with your preparations, please find a few suggestions below that will help you in writing your presentation, creating your slide and practising your presentation.

3MT drafting | 3MT slide | 3MT presentation | Examples of 3MT presentations

Write for your audience

- Avoid jargon and academic language.
- Explain concepts and people important to your research - you may know all about Professor Smith's theories but your audience may not.
- Highlight the outcomes of your research, and the desired outcome.
- Imagine that you are explaining your research to a close friend or fellow student from another field.
- Convey your excitement and enthusiasm for your subject.

4. New Genre: 3-minute Talk (3MT)/Thesis/Pitch?

AMERICAN PSYCHOLOGICAL ASSOCIATION elevator pitch=promotional for business/investors!

TOPICS PUBLICATIONS & DATABASES RESEARCH & PRACTICE EDUCATION & CAREER

Home > Monitor on Psychology > 2017 > December >

FEATURE

The three-minute pitch

Communications competitions are helping psychology students captivate audiences with their research. Here's how you can, too.

By Jamie Chamberlin
December 2017, Vol 48, No. 11
Print version: page 54
7 min read

https://www.apa.org/monitor/2017/12/three-minute-pitch (24/10/04)

4. New Genre: 3-minute Talk (3MT)/Thesis/Pitch?

Knowing how to communicate across disciplines, students say, also makes them more competitive in today's multidisciplinary job market.

Here's how you can hone your research to a jargon-free three-minute pitch:

direct address, personal in-group experience

Connect with your audience. The best presentations start out showing how your research is relevant to your audience and reinforce that idea at the end, says Kate

Envision a one-sentence takeaway. Your goal is for your audience to be able to describe your research in one sentence after you speak, says UCLA graduate student Leslie Rith-

Cut the jargon. Replace such phrases as "randomized control trial" with "study" to be more easily understood and to save precious seconds, advises Rith-Najarian, who

Avoid being cute. While subtle humor can draw in an audience, an overreliance on jokes or puns can bury your message. "Bad puns can go badly more often than they can go well," says Swanson. "Often, it makes your research sound cheesy." Before you try a

https://www.apa.org/monitor/2017/12/three-minute-pitch (24/10/04)

5. Digitalised new genre: open review

only possible in digital form

About OpenReview

OpenReview aims to promote openness in scientific communication, particularly the peer review process, by providing a flexible cloud-based web interface and underlying database API enabling the following:

Open Peer Review: We provide a configurable platform for peer review that generalizes over many subtle gradations of openness, allowing conference organizers, journals, and other "reviewing entities" to configure the specific policy of their choice. We intend to act as a testbed for different policies, to help scientific communities experiment with open scholarship while addressing legitimate concerns regarding confidentiality, attribution, and bias.

Open Publishing: Track submissions, coordinate the efforts of editors, reviewers and authors, and host... Sharded and distributed for speed and reliability.

Open Access: Free access to papers for all, free paper submissions. No fees.

Open Discussion: Hosting of accepted papers, with their reviews, comments. Continued discussion forum associated with the paper post acceptance. Publication venue chairs/editors can control structure of review/comment forms, read/write access, and its timing.

Open Directory: Collection of people, with conflict-of-interest information, including institutions and relations, such as co-authors, co-PIs, co-workers, advisors/advisees, and family connections.

Open Recommendations: Models of scientific topics and expertise. Directory of people includes scientific expertise. Reviewer-paper matching for conferences with thousands of submissions, incorporating expertise, bidding, constraints, and reviewer balancing of various sorts. Paper recommendation to users.

https://openreview.net/about (24/10/04)

5. Digitalised new genre: open review

ICLR 2025 Reviewer Guide

good data for metadiscourse studies!

Thank you for agreeing to serve as an ICLR 2025 reviewer. Your contribution as a reviewer is paramount to creating an exciting and high-quality program. We ask that:

1. Your reviews are timely and substantive.
2. You follow the reviewing guidelines below.
3. You adhere to our Code of Ethics in your role as a reviewer. You must also adhere to our Code of Conduct .

This guide is intended to help you understand the ICLR 2025 decision process and your role within it. It contains:

1. An outline of the main reviewer tasks
2. Step-by-step reviewing instructions (especially relevant for reviewers that are new to ICLR)
3. Review examples
4. An FAQ .

https://iclr.cc/Conferences/2025/ReviewerGuide#Reviewing%20instructions (24/10/04)

For great in-depth resources on reviewing, see these resources :

- Daniel Dennet, Criticising with Kindness .
- Views from multiple reviewers: Last minute reviewing advice
- Perspective from instructions to Area Chairs: Dear ACs .

tension between politeness & authority?

5. Digitalised new genre: open review

We're counting on you

As a reviewer you are central to the program creation process for ICLR 2025. Your Area Chairs (ACs), Senior Area Chairs (SACs) and the Program Chairs (PCs) will rely greatly on your expertise and your diligent and thorough reviews to make decisions on each paper. Therefore, your role as a reviewer is critical to ensuring a strong program for ICLR 2025.

High-quality reviews are also very valuable for helping authors improve their work, whether it is eventually accepted by ICLR 2025, or not. Therefore it is important to treat each valid ICLR 2025 submission with equal care.

As a token of our appreciation for your essential work, top reviewers will be acknowledged permanently on the ICLR 2025 website. Furthermore, top and high quality reviewers will receive special acknowledgement during the opening ceremony and free registration to ICLR 2025.

https://iclr.cc/Conferences/2025/ReviewerGuide#Reviewing%20instructions (24/10/04)

5. Digitalised new genre: open review

Code of Ethics

All ICLR participants, including reviewers, are required to adhere to the ICLR Code of Ethics (https://iclr.cc/public/CodeOfEthics). All reviewers are required to read the Code of Ethics and adhere to it. The Code of Ethics applies to all conference participation, including paper submission, reviewing, and paper discussion.

As part of the review process, reviewers are asked to raise potential violations of the ICLR Code of Ethics. Note that authors are encouraged to discuss questions and potential issues regarding the Code of Ethics as part of their submission. This discussion is not counted against the maximum page limit of the paper and should be included as a separate section.

The Use of Large Language Models (LLMs)

The use of LLMs is allowed as a general-purpose assist tool. Authors and reviewers should understand that they take full responsibility for the contents written under their name, including content generated by LLMs that could be construed as plagiarism or scientific misconduct (e.g., fabrication of facts). LLMs are not eligible for authorship.

https://iclr.cc/Conferences/2025/ReviewerGuide#Reviewing%20instructions (24/10/04)

6. Conclusion: directions

Future directions (Bhatia 2023: 322-324)

- "need to reform the review process"
- conceptualise the wider field of "knowledge communication"
- "demand greater transparency of processes and data"
- "avoid tunnel vision, sampling bias and the inability of a single person to know everything about a complex problem"
- "reform or reframe research design processes, peer review practices, encourage multidisciplinary interpretations of research findings, inspire better management of data collections processes and procedures and discourage undermining of research standards and ethics."

6. Conclusion: research perspectives

research data for new genres are easily available on the internet
- including metadata (transparency)

for
- cognitive (e.g. attention span)

and
- metadiscourse analyses (e.g. engagement features)

but

annotation is labour-intensive
- 3MT in ELAN

and
- OpenReviews with heterogeneous, diverse metadata

integration and effect of LLMs?

6. Conclusion: research questions

Future research questions:

- **Which metadiscourse/linguistic forms are used to achieve specific purposes?**
  e.g. tension accessibility/politeness vs. authority? (audience design)
- **Do science journalists sex-up science results?**
  by hedging, boosting in metadiscourse (quantitative, qualitative/propensity)
  NOT in trad. genres, e.g. by *New Scientist* journalists (cf. Schmied/Haase 2008)
  BUT in new genres? by researchers in Social Media?
- **When are emerging practices conventionalised, a new genre in the discipline?**
- **Are conventionalised practices easier to process (cognitively)?**
- **Which genre developments are temporary (through pandemic) and permanent (through digitalisation) in the respective disciplinary culture?**
  (Schmied, Bondi, Dontcheva Navratilova & Pérez-Llantada Eds. 2023)
- **Are conventionalised practices reinforced by AI (Large Language Models)? or Are unconventional practices favoured as they signal "human" (non-AI)?**
- **Are ethical issues considered in current science communication?**
  YES, at least in all instructions "integrity guidelines" are included
- **Which genre developments have to be included in (non-native?) graduate teaching?** (e.g. Schmied 2023)

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Exercises: Student research questions

- Which differences in form are between letters, email messages and WhatsApp messages?
- Why? What do these forms mean/signal?
- Which genres do you know from your university work?
- Which factors do you consider to assess a good translation?
- What has changed in your translation work since Large Language Models became available?
- What is the genre difference between ChatGPT and DeepSeek output?