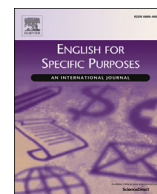


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“Come along for a tweetorial!”: Recontextualization strategies in biomedical publication-promoting tweetorials

María-José Luzón

Department of English and German Studies/Institute of Biocomputation and Physics of Complex Systems, University of Zaragoza, Zaragoza, Spain

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ABSTRACT

The need to promote research and make it visible to various audiences has led to the emergence of various digital genres which seek to draw attention to research publications. Tweetorials, long Twitter threads to communicate complex concepts, are increasingly being used by medical researchers to report on and promote their own published articles and preprints, in the competitive context of academic publishing. The main purpose of this article is to examine the strategies employed by researchers to recontextualize scientific discourse in these tweetorials. The analysis of a corpus of 50 biomedical publication-promoting tweetorials has revealed five categories of strategies: strategies to establish the authors' authority and credibility; strategies to make claims and arguments convincing; strategies to engage the reader, by creating intimacy and dialogic involvement or by attracting their attention to the tweetorials; strategies to facilitate quick processing of information; and strategies to deal with space constraints. The results suggest that the recontextualization strategies used in the composition of these tweetorials are determined by the promotional purpose of the genre, the audience, the affordances and constraints of the medium, and the genre contextual features.

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1. Introduction

As a social media platform, Twitter is increasingly being utilized by the medical community to share scientific work and knowledge with diverse audiences, build relationships and strengthen collaboration, maximize the visibility of research, and continue medical education (Choo et al., 2015; Grossman et al., 2021; Morgan et al., 2022; Soragni and Maitra, 2019; Tardy, 2023). Evidence of the importance of Twitter for the medical community is the existence of Twitter communities such as #MedTwitter, #EpiTwitter, #Cardiotwitter or #NephTwitter, where researchers and medical professionals share research findings and discuss health related issues. In addition, a variety of Twitter genres have emerged which enable medical researchers to leverage the affordances of this platform to engage in new practices. These include, for instance, livetweeting talks and Twitter-based journal clubs, where researchers discuss the key points, advances or shortcomings of a selected paper (Daneshjou et al., 2021).

Twitter is also an apt tool to meet the demands of what has been called “the attention economy” (Hyland, 2023; Lanham, 2006); in the digital age, where the abundance of information has turned attention into the most scarce resource (Lanham, 2006), and getting one's publications noticed, read and cited is key to academic success (Hyland, 2023), scholars need to attract attention to their publications and promote their work rhetorically to make it “as noticeable as possible” and persuade

E-mail address: mjluzon@unizar.es.

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the readers of its significance (Hyland, 2023: 1). Researchers are using Twitter to publicize new publications and encourage readers to access them (Luzón, 2023b). However, since the 280-character limitation of tweets makes it difficult to discuss new research in a single tweet, researchers are overcoming this limitation by composing Twitter threads or tweetorials (i.e. a sequence of threaded tweets by the same author on a single scientific topic) (Soragni and Maitra, 2019; Tardy, 2023). Tweetorials help researchers share their new publications providing more in-depth description than what is allowed by a single tweet.

As shown on the website medtweetorials.com, the members of the medical community, in particular, are composing tweetorials for a variety of purposes, e.g. to promote their publications, to explain complex medical concepts to a broad audience (i.e. informational tweetorials), to report a clinical case. The increasing number of publications on tweetorials by medical researchers (e.g. Albin and Berkowitz, 2021; Breu, 2020) also provides evidence of their popularity and importance for the medical community. However, there is little research on the linguistic and discourse strategies used by tweeters when composing their tweetorials, and this scarce research has focused mainly on informational tweetorials (see Gero et al., 2021; Tardy, 2023). Tweetorials intended to promote and present the main points of published articles or preprints (called here “publication-promoting tweetorials”) have received even less attention. In her analysis of the rhetorical structure of publication-promoting tweetorials, Luzón (2023a) found that the moves in these tweetorials work together to draw the reader’s attention to the publication and highlight the key findings. The current study seeks to provide further insights into publication-promoting tweetorials by analyzing the strategies utilized by researchers to attract attention to the tweetorial and the publication. When composing these tweetorials, tweeters recontextualize the scientific discourse of the article to adapt it to the new context. Recontextualization entails selecting the contents to be moved to the new context and using the semiotic resources available in this new context to achieve the rhetor’s goal (Bateman, 2008; Bezemer and Kress, 2008). The purpose of the study reported here is to answer the following two questions:

RQ1. What strategies are employed to recontextualize scientific discourse in these tweetorials and how do these strategies contribute to the social action of the genre?

RQ2. How do the medium affordances and constraints and the contextual features of the genre influence recontextualization strategies?

2. Literature review

2.1. The tweetorial genre

The tweetorial is a “parascientific genre”, that is, a genre that “borrows scientific authority and knowledge structures from the realm of science” but does not follow the conventions for reporting research of internal science communication (Kelly and Miller, 2016: 231). Researchers are composing tweetorials to achieve various purposes and respond to various social needs, which has led Graham (2021) to distinguish four sub-genres: “literacy support tweetorial” (i.e. informational tweetorial); “misinformation corrective”, which refutes a recent claim by providing evidence; “clinical experience report”; and “article or preprint review”, which reports on new scientific findings.

The article or preprint review tweetorial is becoming increasingly popular among medical researchers, heralded as an effective tool to highlight the key ideas of a paper and engage potential readers (Daneshjou et al., 2021; Grossman et al., 2021; Soragni and Maitra, 2019; Tomblinson et al., 2021). These tweetorials are often posted by authors of publications or preprints to promote their findings. They are characterized by conciseness in the presentation of findings, multimedia integration, accessibility to an audience with various degrees of expertise (i.e. not only medical researchers, but also medical students, health practitioners and researchers in other disciplines), and digestible format that enables “rapid on-the-go consumption” by readers (Tomblinson et al., 2021: E103). Although article or preprint review tweetorials may also be composed to assess critically other researchers’ published work (Soragni and Maitra, 2019), the focus of the current study is “publication-promoting tweetorials”.

Previous research on tweetorials has provided information on their rhetorical structure and the rhetorical strategies employed (Gero et al., 2021; Graham, 2021; Luzón, 2023a; Tardy, 2023). Tweetorials tend to have three parts, which Gero et al. (2021) call “lede” (i.e. the first tweet to attract the reader), “body” and “conclusion”. Rhetorical move analysis was used by Tardy (2023) to study informational tweetorials on COVID19 written by epidemiologists and by Luzón (2023a) to study biomedical publication-promoting tweetorials (see Supplementary material for the results of the move analysis). Given that these types of tweetorials have different purposes and cater for the needs of different audiences, their move structure was different. Luzón (2023a) found that publication-promoting tweetorials reproduce the IMRAD structure of RAs, incorporating several moves and steps occurring in the sections of the RA, but add some moves and steps intended to attract and engage the readers. A prominent element in these tweetorials is the hyperlink to the summarized article/preprint, usually in the lede of the tweetorial. Gero et al. (2021) analyzed the rhetorical strategies or writing techniques in informational tweetorials and they found that the following techniques were frequent: posing an intriguing question, use of narrative to structure the tweetorial, signposting, subjectivity (i.e. reference to personal experience or position taking), engaging conversationally (e.g. rhetorical questions), establishing credibility (e.g. providing statistics), media use (e.g. figures, diagrams, memes, GIFs), informal language and humor, and analogies to facilitate understanding of complex concepts.

Tardy (2023) notes that the discourse features of tweetorials are shaped by the contextual features of microblogs: these are “crowded informational space[s]” (p. 186), where readers are constantly receiving new content; they are usually read on a small screen, often through quick scrolling and skimming, and therefore tweeters are likely to simplify content in order to attract the readers’ attention; readers need to click on “Show this thread” below the first tweet to enter a thread, and thus individual tweets must be engaging and stimulate the readers’ interest.

2.2. *Recontextualization*

Publication-promoting tweetorials belong to a colony of genres, characterized by brevity, whose main purpose is to increase the visibility and reach of research results, and which includes other emerging summary genres, such as graphical abstracts, visual abstracts, video abstracts, lay summaries, or science podcasts (Hartley and Cabanac, 2017; Plastina, 2017; Rowley-Jolivet and Carter-Thomas, 2019; Ye, 2021). In all these emerging summary genres, the scientific discourse of the research paper is recontextualized to make it appropriate for the new context. Bezemer and Kress (2008: 184) define recontextualization as follows:

moving meaning material from one context with its social organization of participants and its modal ensembles to another, with its different social organization and modal ensembles. (...) [R]econtextualization involves the representation of the meaning materials in a manner apt for the new context in the light of the available modal resources.

This definition makes it clear that the modal resources made available by the medium influence how content is recontextualized in a genre. The process of recontextualization often involves textual changes, such as condensation, simplification, elaboration, or addition (Calsamiglia and Van Dijk, 2004; Gotti, 2014), through which the rhetor seeks to respond to the context of the new text. That is, the content extracted from the original text is adapted to fit the new context, which involves transforming it to achieve the communicative goals of the new genre, and often, to construe new social relations between the addresser and the audience (i.e. “social repositioning”, in Bezemer and Kress’ (2008) words), taking into account the affordances and constraints of the new context. Therefore, recontextualization is not restricted to shifting the source text from an expert context to a lay context (i.e. popularization). Scientific information in a genre (e.g. the research article) may also be recontextualized into another genre intended for intraspecialist (disciplinary) communication, interspecialist (academic, not necessarily disciplinary) communication, or for communication with diversified audiences.

Given the importance of recontextualization in the composition of digital genres for science dissemination, much recent research on these genres has focused on the strategies employed by the rhetors in this process. Researchers have explored recontextualization strategies in science blogs (Luzón, 2013; Zou and Hyland, 2019), podcasts (Rowley-Jolivet and Carter-Thomas, 2019; Ye, 2021), digests (Lorés, 2023), research group videos (Luzón, 2019), video abstracts and author videos (Dontcheva-Navratilova, 2023; Plastina, 2017; Rowley-Jolivet and Carter-Thomas, 2019), Three-minute thesis presentations (Carter-Thomas and Rowley-Jolivet, 2020), or YouTube dissemination science videos (Bernad-Mechó and Valeiras-Jurado, 2023), among others. These studies have revealed that when composing these genres, rhetors may use strategies to tailor information to the readers’ knowledge and facilitate comprehension of the text (e.g. elaboration of terms, reformulation, images, hyperlinks, analogies from everyday life, visuals), to connect with the audience and foster their interest (e.g. informal discourse, questions, inclusive pronouns, scenarios, references to popular culture, self-disclosure, catchy titles), and to enhance their credibility and authority (e.g. exclusive *we*, hyperlinks to academic publications, stance markers). The specific strategies used depend, however, on the genres. For instance, research group videos make use of video footage representing researchers “doing science” to establish credibility (Luzón, 2019), and 3MT presenters resort to scenarios (i.e. imaginary situations) to explain complex events, and to striking visual images to engage the reader (Carter-Thomas and Rowley-Jolivet, 2020).

Studies on the recontextualization of scientific knowledge into digital genres have also foregrounded the important role of multimodality, by demonstrating that recontextualizing involves using the variety of modes available in the genre, not only the verbal mode (see Bernad-Mechó and Valeiras-Jurado, 2023; Carter-Thomas and Rowley-Jolivet, 2020; Dontcheva-Navratilova, 2023; Luzón, 2019). For instance, in her analysis of online videos composed by research groups, Luzón (2019) found that recontextualization strategies might be performed through the orchestration of various semiotic modes. The strategy “representing researchers as experts”, for example, could be performed by combining verbal and visual modes (e.g. exclusive *we*, video footage of the research carrying out research, visual representation of equipment). Carter-Thomas and Rowley-Jolivet (2020) also discuss how in 3MT presentations strategies can be realized through various semiotic resources. For instance, presenters can engage the audience through visual impact (e.g. striking images, gestures, researchers dressing the part to illustrate the topic) or various personalization strategies (e.g. smiles, personal pronouns).

A prominent feature of digital genres that has been shown to have various functions when scientific discourse is recontextualized is hyperlinking. Hyperlinks are used in research blogs and in digests to facilitate comprehension, by providing access to explanations of technical terms or background information, and to enhance the credibility of the authors, by incorporating other voices that support their arguments (Lorés, 2023; Luzón, 2013). In tweets recontextualizing epidemiological reports of the European health agency, hyperlinks were used to disseminate such reports and were preceded by linguistic expressions that signaled their presence and emphasized the newsworthiness of the report (Orpin, 2019).

The studies discussed above analyze genres that recontextualize scientific content, focusing on how this content is adapted rhetorically to achieve the goals of the new genre. A different approach is that adopted by Zou and Hyland (2019), who, in

order to analyze how authors recontextualize in blogs the information from their published articles, used corpus analysis to compare quantitatively stance and engagement in blog posts and journal articles with the same authors and topics. They provide corpus-based evidence that the discourse of blogs is more personal, evaluative and dialogic than that of articles (i.e. higher frequency of first person pronouns, reader pronouns, questions, affective commentary), which reflects “a sensitivity to new purposes” (p. 731) and to a less predictable audience. In the current study, corpus analysis also contributes to throwing light on the differences between the discourse of tweetorials and that of articles.

3. Corpus and method

3.1. Corpus

The data for this study consists of a corpus of 50 biomedical publication-promoting tweetorials, written in English and posted in 2021–2022, and the RAs or preprints on which the tweetorials were based. This discipline has been chosen because tweetorials are particularly popular with medical researchers, as attested by the high number and variety of tweetorials on the website medtweetorials.com and by the abundance of publications giving advice on how to create medical tweetorials (e.g. [Albin and Berkowitz, 2021](#); [Breu, 2020](#); [Goyal, 2021](#)). The term “publication-promoting tweetorial” is used here to refer to a collection of threaded tweets aimed at summarizing and promoting published research (or a preprint) and written by one of the authors of the publication. To be included in the corpus, tweetorials should make explicit reference to a specific publication, and—following [Tardy \(2023\)](#)—consist of at least four tweets. In addition, only one tweetorial per author was selected.

The collection of tweetorials for the corpus began on December 8, 2022. As already pointed out by [Gero et al. \(2021\)](#) and [Tardy \(2023\)](#), finding tweetorials is a challenging task, so two search strategies were combined. First, in order to find publication-promoting tweetorials, I used the Twitter search engine to find tweets with specific keyword combinations (i.e. “tweetorial + paper”, “tweetorial + publication”, “tweetorial + preprint”, “tweetorial + our work”). The results were limited, since these searches did not yield tweetorials beyond a particular date. From these results, I selected biomedical tweetorials which met the above criteria. The second strategy was to use the website <https://medtweetorials.com/>, where medicine tweetorials can be browsed by specialty or by category (e.g. #Case, #Advocacy, #Lecture, #Publication, #Research, #Question). This facilitated the search because two categories (#Publication, #Research) included publication-promoting tweetorials, although not all tweetorials in these categories were intended to promote the author’s own research. Browsing this website, I selected the most recent tweetorials which met the criteria, until the corpus of 50 tweetorials was completed. [Table 1](#) presents an overview of the corpus.

Table 1

Features of the corpus of publication-promoting tweetorials.

	Lowest	Highest	Average per thread	Total in corpus
n° of tweets per tweetorial	5	35	12.8	640
n° of words per tweetorial	134	1,374	434.2	21,710
n° of images per tweetorial	1	25	7.32	366

A corpus of 47 RAs/preprints on which the tweetorials in the corpus were based, totaling 308,712 words, was also collected to compare the use of some features in the RAs/preprints and in the tweetorials. Three of the papers summarized by the tweetorials were not included in the corpus because it was not possible to access the full text.

3.2. Method

Tweetorials were converted into individual pdf files and analyzed with the qualitative software program Atlas.ti. In order to identify the recontextualization strategies in the tweetorials of the corpus, an initial code list was designed, drawing on previous research (e.g. [Luzón, 2013, 2023b](#); [Carter-Thomas and Rowley-Jolivet, 2020](#)). However, since this is a new context with specific affordances and constraints, this code list was complemented with codes that emerged from my observation of the data, using the “coding in vivo” option of Atlas.ti. This was an iterative process, which involved eliminating codes that did not occur in the corpus, adding new codes, and revising and refining the coding scheme. The resulting recontextualization strategies were grouped into five superordinate categories: (i) strategies to establish the authors’ authority and credibility; (ii) strategies to make claims and arguments convincing; (iii) strategies to engage the reader; (iv) strategies to facilitate the processing of information; (v) strategies to deal with space constraints. The final coding scheme was used to re-analyze the whole corpus. Specific fragments in tweetorials and in their related papers were compared to get more detailed information on the changes that took place when moving information from the paper to the tweetorial.

Following [Zou and Hyland \(2019\)](#), corpus tools (WordList tool, concordancer) were used to get information on the frequency and collocates of some items which contribute to recontextualization strategies (e.g. personal pronouns). Keyword¹

¹ [Scott \(1997: 236\)](#) defined “keyword” “a word which occurs with unusual frequency in a given text [...] by comparison with a reference corpus of some kind”.

analysis was also used to get insights into the linguistic differences between the tweetorials and the RAs. Although keyness has been associated with the idea of aboutness, i.e. the topics of a corpus (Scott, 1998), keyword analysis can also reveal differences in register and interpersonal meaning between two corpora, and thus it may contribute to providing quantitative evidence of some rhetorical choices in tweetorials. For the keyword analysis the corpus of tweetorials (without the three tweetorials for which there was not corresponding article) and the corpus of articles/preprints on which they were based (reference corpus) were compared.

4. Results and discussion

4.1. Keyword analysis

Table 2 presents the first 40 keywords in the corpus of tweetorials.

Table 2

First 40 Keywords tweetorials\RAs.

N	Key word	Freq.	RC. Freq.	Keyness
1	YOU	51	28	184.87
2	TWEETORIAL	30	0	167.05
3	THANKS	32	4	153.58
4	WE	305	2,176	127.30
5	OUR	136	622	123.58
6	MY	34	28	107.52
7	ANSWER	27	11	106.01
8	SO	33	34	95.22
9	EBM	17	0	94.65
10	PAPER	41	66	94.29
11	BUT	80	318	86.66
12	WHAT	32	39	85.42
13	HOW	45	117	74.07
14	CHEMO	13	0	72.38
15	VAX	13	0	72.38
16	LAB	21	15	69.93
17	DON'T	16	3	69.72
18	JOURNALS	16	4	69.57
19	ABOUT	35	73	68.14
20	IT	66	293	62.30
21	EXCITED	11	0	61.24
22	NEW	45	146	60.64
23	YOUR	15	7	56.88
24	W	20	22	56.03
25	HAPPY	10	0	55.67
26	CAN	73	383	54.25
27	LDL	19	22	51.97
28	WORK	40	137	51.03
29	PTS	9	0	50.11
30	MANY	36	115	49.25
31	SOME	41	157	46.34
32	COLLABORATORS	8	0	44.54
33	LOT	11	4	44.35
34	GOOD	11	4	44.35
35	IF	43	181	43.42
36	KNOW	13	10	42.16
37	I	50	241	42.16
38	THINK	11	5	42.00
39	COST	19	35	40.20
40	THREAD	7	0	38.97

As can be seen, when compared with the RAs, tweetorials display a much higher percentage of personal pronouns and possessive adjectives (“you”, “we”, “our”, “I”, “my”, “me”), markers of attitude and positive evaluation (e.g. “excited”, “happy”, “amazing”, “new”), informal words (“good”, “bad”, “lots”, “things”), question words (“what”, “how”), abbreviations (e.g. “chemo”, “vax” [vaccines], “pts” [patients], “w” [with]) and some acronyms. The keyword analysis indicates therefore that, as with blogs, the discourse of these tweetorials is more dialogic, personal and informal than that of articles. The results of the keyword analysis will be discussed in section 4.2. in relation to the different recontextualization strategies.

4.2. Recontextualization strategies

In this section, I discuss the recontextualization strategies used in the corpus of tweetorials. Although strategies have been grouped into five main categories, it should be noted that some discursive elements may be used strategically for more than one purpose. For instance, visuals may be used to engage the readers, enhance comprehensibility and/or provide evidence.

4.2.1. Strategies to establish the authors' authority and credibility

Table 3 lists the strategies to establish the author's authority and the percentage of tweetorials where these strategies are used.

Table 3
Strategies to establish authority.

Strategies	% of tweetorials
• Reference to the authors' research activity and experience	100%
• First person pronoun referring to the author	100%
• Reference to the journal where the paper has been published	80%
• Technical disciplinary language	100%
• Reference to other researchers	50%

Since the publication-promoting tweetorial is a parascientific genre, which “borrow[s] scientific authority (...) from the realm of science” (Kelly and Miller, 2016: 231), the strategies used by writers of these threads to establish authority seek to project their identity as researchers and some of them are similar to those utilized in RAs. Authors provide evidence of their own competence as researchers by referring to their research activity and publications in several ways: by indicating that they are members of a research group (e.g. “Now out in @ScienceTM our manuscript from @hanks_lab”), by making reference to their research projects (e.g. “@GLADstudy”) or the research institutions where they work (e.g. “@UniFreiburg”), by making reference to their wide publishing/research experience (e.g. “my 20th paper”), and by referring and linking to their own publications (e.g. “Previously we have shown ...” + link to the publication). Self-citation to give prominence to one's previous research is an attention-getting practice also increasingly used in RAs (Hyland, 2023). Reference to the journal where the paper has been published, a strategy also used in other summary genres such as video abstracts (Dontcheva-Navratilova, 2023), occurs in all the tweetorials except for those which summarize a preprint, rather than a research article.

A pervasive element, occurring in all the threads, is the use of first person pronouns and possessive adjectives referring to the authors as researchers (e.g. “in this paper we discuss”, “we use a sample with”). As can be seen in Table 2, “we”, “I”, “our”, and “my” are keywords in the corpus of tweetorials. The high frequency of authorial self-mentions (“exclusive we”: 4.56 occurrences per tweetorial; “exclusive our”: 2.92 occurrences per tweetorial; “I”: 1 occurrence per tweetorial; “my”: 0.6 occurrences per tweetorial) reflects the authors' desire to make themselves visible as researchers. “Paper” is the most frequent collocate of “our” and “my” in the corpus. In addition to “paper”, the most frequent content words collocating with “our” are “new”, “work”, “tweetorial”, “share”, “findings”, “results” and “preprint”, which shows the tweeters' desire to claim authority. Self-citation and self-mention, the latter being a prominent feature in the tweetorials in the corpus, help to emphasize the authors' impact in the discipline and draw attention to their work (Hyland, 2023).

The language used in most of the threads, especially when describing methods and results, is technical disciplinary vocabulary, with frequent use of discipline acronyms, which reveals the authors' expertise and familiarity with the methods and concepts of the discipline. Authors also make frequent reference to other researchers and collaborators, to acknowledge their contribution to the paper or to cite them, showing thus their belonging to the disciplinary community (e.g. “In our paper out now in @NatureComms, Carl_Philip Hackstein @PKlenermanLab and I joined forces”).

4.2.2. Strategies to make claims and arguments convincing

Table 4
Strategies to make claims convincing.

Strategies	% of tweetorials
• Visuals providing evidence	78%
• References to other researchers or labs	28%
• References to scholarly sources via hyperlinks	26%
• Link to non-scholarly but reliable sources	12%
• Links to the summarized publication	10%

The most frequent strategy to make claims and arguments convincing is the use of visuals providing evidence for a finding/observation (most frequently figures, but also GIFs) or tables providing numerical evidence (see Table 4). These are usually visuals taken from the research paper, either from the body of the paper or from the supplementary material, with no or little modification (e.g. graphs, tables, photographs), which tend to occur in the move *Presenting results* of the tweetorial (See

Figure 1). As illustrated in Figure 1, these visuals are often graphical visuals (e.g. graphs, tables) or Figurative II visuals (i.e. sophisticated science-related photographs such as X-Ray scans) (see Rowley-Jolivet, 2002), whose meaning and relation to the text are only comprehensible to experts. In a few cases, moving images (in the form of GIFs) are added in the tweetorial, to resemiotize content that in the paper was expressed verbally or through a non-moving image, so as to let the readers partake in the researchers' observations. These visuals have therefore the same function as in the RA: providing evidence for the results and attracting the reader to the argument (Miller, 1998). Interestingly, evidence-providing visuals do not seem to occur often in the tweetorials analyzed by Gero et al. (2021), intended for a general audience. Visuals in these tweetorials were explanatory visuals, visual citations or fillers (i.e. visuals with pictorial purposes).

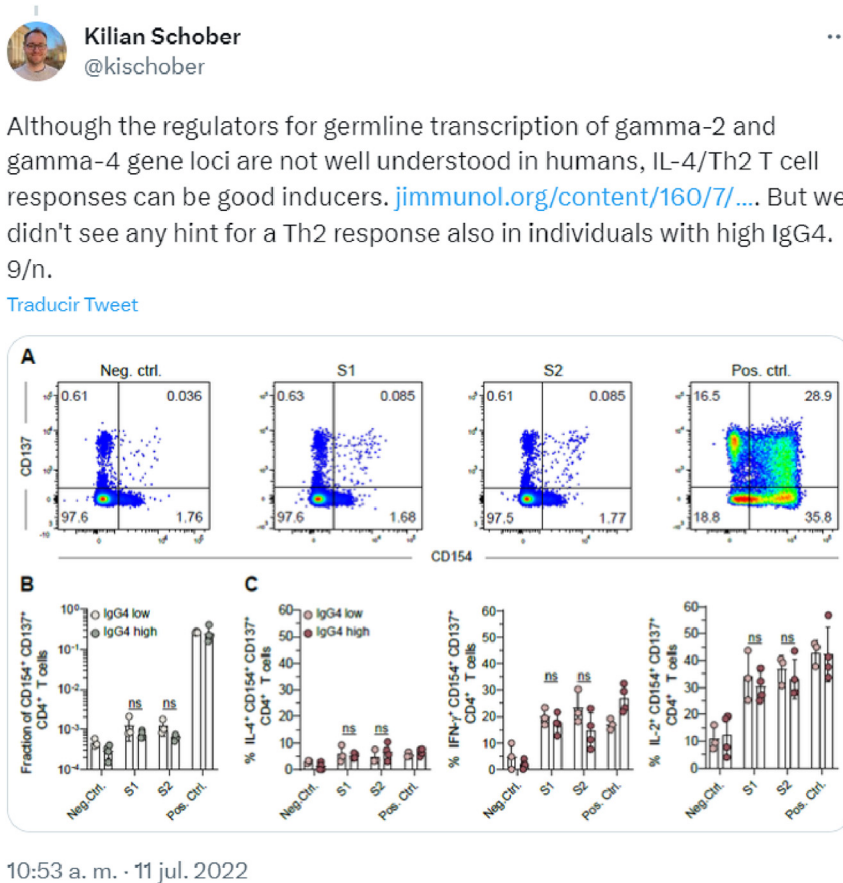


Figure 1. Visual providing evidence for an observation (Tweetorial 25).

Another persuasive strategy is the use of references to scholarly sources via hyperlinks (in 26% of the tweetorials) (see Figure 1), to other researchers or labs (which usually take the form of @mentions) (in 28% of the tweetorials), or links to the summarized publication in the tweets in the body, so that readers can get more detailed information (in 10% of the tweetorials). Example 1 presents the fragment from the research article uptaken by the text in the tweet in Figure 1. Among the changes, when moving this information to the tweet the superscript reference number has been replaced by a link, which, unlike the number, provides direct access to the linked source.

- (1) However, the regulators for germline transcription of the $\gamma 2$ and $\gamma 4$ gene locus are not very well understood in humans. IL-4 in concert with IL-10 has been described to be involved in switching to IgG4²⁵.

The use of @mentions as a citation form serves not only to make arguments more convincing but also to foreground other researchers/research groups, and draw the readers' attention to their work, as can be seen in Example 2. Example 2 takes up a much longer fragment of the paper where sources are represented by superscript numbers, following the Vancouver referencing style ("Several studies confirmed that [...] after the initial two-dose regimen^{12–14}. It was further shown that [...]. SARS-CoV-2 vaccine-derived mRNA [...] after vaccination¹⁵"). Interestingly, while the reference entries in the paper show a list of individual authors, the @mentions in the tweetorial make the labs visible.

- (2) The labs of @ScottBoydLab @TheBcellArtist @PGTimmune @NussenzweigL @PaulBieniasz @MahevasMatthieu and others have well documented how long the germinal center reactions upon SARS-2 mRNA vax are (Tweeterial 25)

References to non-scholarly but reliable sources (e.g. the World Health Organisation) are also sometimes used to demonstrate the reliability of a claim (12% of tweetorials).

4.2.3. Strategies to engage the reader

The tweetorials in the corpus displayed a high frequency and variety of strategies to engage the readers (see Table 5), by creating intimacy and dialogic involvement and/or by drawing the reader's attention towards the tweetorial. Some of these strategies were also frequent in informational tweetorials (e.g. questions, informal language, visuals, conversational discourse, subjectivity) (Gero et al., 2021).

Table 5
Strategies to engage the reader.

Strategies	% of tweetorials
• Visuals (pictures, graphics, tables, GIFS)	100%
• @mentions	80%
• Positive evaluation	78%
• Graphical emphasis (exclamations and capitals)	76%
• Questions	74%
• Personal narratives	70%
• Features of conversational discourse	70%
• Reader mentions	58%
• Directives	58%
• Hashtags	52%
• Emoji	50%
• Verbal expressions of feelings or emotional reactions	48%
• Brackets for asides	30%
• Humor	8%

One frequent way to create intimacy and solidarity was the use of personal narratives (70% of the threads). These included personal accounts related to their research (e.g. “When my alarm went at 5:45 this morning I wasn’t anticipating extracting a Red Flanked Bluetail today”), references to research as socially constructed and problematic, i.e. features of the contingent repertoire, used by scientists in their private communication (Gilbert and Mulkey, 1984) (e.g. “We were shocked to find that disconnected branches (...). Then we realized that ...”), comments on their clinical practice and professional experiences (e.g. “Sometimes our patients ask what are the chances”). Another intimacy strategy was the use of features of conversational or informal discourse, present in 70% of the threads (e.g. “Hey #CHIP folks, ever wondered how ...?”, “Things got weird!”, “Remember those antibody levels?”, “Follow up, will you?” “Right?”, “How do we ...? Well, it depends on ...”, “OK, this is all very well, but ...”, “seem like a good idea right!”, “these guys”).

Most threads display expressions of positive evaluation, intended to get the reader interested in the paper (78%). Authors frequently evaluate their research and results positively, resorting to what Hyland (2023) refers to as “hyping the message” in order to emphasize aspects such as their novelty, importance, interest or unexpectedness, which helps to arouse the readers’ interest (“One of my highlights is”, “Importantly, we found”, “This is the most relevant paper I’ve written”, “A striking observation in both models was”, “to our surprise”). The adjective “new” is a prominent keyword in the corpus, with 45 occurrences, collocating with “our”, “paper”, “preprint” or “study” in the lede of the tweetorial. There were a high number of occurrences of sentence adverbs such as “interestingly” (eight occurrences), “importantly”, “surprisingly”, “notably”, “weirdly”, “intriguingly”, “curiously” or “paradoxically”, which contributes to arousing the readers’ curiosity. This use of positive words to explicitly evaluate and promote the researchers’ own results is described by Hyland (2023) as “attention seeking written loudly” (p. 5). Positive adjectives were used to evaluate figures/pictures, so as to encourage readers to pay attention to them or access the paper (“This fascinating figure shows”, “Please see our full paper for many more beautiful pictures”, “again another amazing graph ...”).

Positive evaluation was also frequently used to acknowledge and praise the contribution of others to the research or publication (which in turn reflects on the quality of such research) and to construct solidarity with other researchers (e.g. “wonderful/amazing collaborators”, “great enlightening comments”, “smooth editorial process”, “the brainchild of this work”, “fantastic cross-disciplinary team effort”, “bioinformatics genius”), particularly in the move *Giving credit*.

The threads also display a high number of expressions of feelings and emotional reactions, which contribute to creating solidarity with readers who have probably experienced similar feelings. These were often used by the authors to express their feelings regarding the publication of their paper in the move *Announcing the Publication* (in the first tweet) (e.g. “overwhelmingly joyful that my 1st first-author paper is out now”). “Excited” and “happy” are prominent keywords in the corpus

(11 occurrences each), occurring virtually always in the structure “excited/happy to + share/announce/present [our paper]”. Authors also use expressions of feelings when research went/did not go as expected (e.g. “When I saw that HOXA genes were unchanged, I’m really upset”), or for other purposes (“we are happy to hear thoughts and feedback:-”). Sentence adverbs to express emotional reactions were also frequent (e.g. “unfortunately”, “frustratingly”). Interestingly, [Berger et al. \(2023\)](#) found that emotional language that evokes excitement, anxiety and uncertainty helps sustain readers’ attention.

Reader mentions was another prominent device to create dialogic involvement. Fourteen threads displayed occurrences of inclusive pronouns (with 113 occurrences of inclusive “we” and 4 occurrence of inclusive “our”), used mainly for three purposes: to take the readers along in the argument (e.g. “Looking above, we see something interesting”, “if we disrupt this process”, “we can conclude that”), to acknowledge the readers as practitioners or researchers (on the same level as the authors), thus implying that the results of the paper have implications for them (e.g. “some take home message: we need to examine.”, “Hopefully this data will convince our patients ...”), or to indicate shared knowledge or shared practices (“So we know that senescent tumor cells make a bunch of cytokines”, “often in clinical medicine we make preliminary diagnoses”).

Second person pronouns are also frequent (used in 15 threads; 55 occurrences of “you” and 16 of “your”), with “you” being the most prominent keyword in the corpus of tweetorials. Second person pronouns are an effective way to attract the readers to the text and engage them actively in the argument, encouraging them to read a paper that will be of interest to them. Occurrences of second person pronouns may be instances of “generic you”, which refer to people in general (example 3a,b), but most frequently they are used to appeal more directly to the reader (example 4a,b). However, as pointed by [Orvell et al. \(2020: 31838\)](#), “even when “you” is used generically, the association to its specific meaning may further pull in the addressee” and enhance the feeling of connection (see example 3b, in a tweet about pregnancy). Interestingly, “you” occurs frequently in the structure “if you (...) + directive/question” (13 occurrences), which places the reader in a hypothetical situation and asks him/her to follow a specific course of action (see example 4a).

- (3) a. If you squish them, they break into little modules (Tweetorial 15)
- b. The graphs speak for themselves: jumps in ultrasounds, fetal surveillance, specialist visits as you cross age 35 (Tweetorial 21)
- (4) a. If you had the choice, would you have a baby when you were 34 yrs + 11 mos old or 35 yrs + 1 mo old? (Tweetorial 21)
- b. Our lab is recruiting postdocs! If you are interested in (...), come work with us! (Tweetorial 50)

Many second person pronouns occur in the moves/steps with a more interpersonal function in tweetorials, e.g. the step “asking a question” in the lede, the moves *Giving credit* (13% of the occurrences of “you” occur in the phrase “Thank you”), or *Appealing directly to the reader*.

The @mention feature is also an engagement mechanism which helps to create connections with the “mentioned” users ([Luzón, 2023b](#)), used in the corpus to indicate that the user is referred, but also (and sometimes simultaneously) as a vocative, to send the user a notification. For instance, in example (5) the @mention feature serves to address the mentioned researchers/labs and ensure that they see the tweet and are aware that they are being credited, thus engaging them in the conversation and helping to strengthen social relations.

- (5) Utilizing mitochondrial DNA SNPs, pioneered by @vangalenlab, @CalebLareau and @bloodgenes, we were able to ... (Tweetorial 50)

[Tardy \(2023: 199\)](#) also found that in her corpus of informational tweetorials @mentions may function as a cc line in an e-mail to “[extend] a post’s reach without having to weave others’ names into the post’s content”. This use of @mentions was also found in the last tweets of some tweetorials in this study.

Questions are another prevalent feature (occurring in 37 tweetorials), which is reflected on the fact that “what”, “how” and “why” are keywords in the corpus (with 25% occurrences of “what”, 25% occurrences of “how”, and 8% occurrences of “why” as part of a direct questions). Questions may occur in the first tweet (e.g. 4a above), with a similar function to that of interrogative titles in RAs, i.e. to intrigue potential readers and hook their interest at the outset (see [Hyland, 2023: 3](#)) or they may occur when presenting the results. Very frequently, questions also occur in threads that present a narrative of the research, used to keep the audience interested by promising an answer (e.g. “So, what does this chromatin accessibility mean? It means that ...”); also some threads used questions as headings for the different tweets. For instance, in one of the threads (Tweetorial 32), the different tweets after the lede began with a question: “What did we do?”, “How did we do it?”, “What did we find?”, “Why is this important?”.

Visuals are a key element in these threads, to the point that all the tweetorials include them, and in many tweetorials most of the tweets contain a visual. Visuals help to grab the attention of the readers while they scroll through their Twitter feed. As has been said, most tweets contain figures or tables taken from the paper, which, in addition to supporting a claim, also contribute to engaging the readers (although, some visuals, like tables, are probably less engaging than colorful visuals, like figures). Furthermore, other types of visuals are embedded in the tweets: pictures not included in the paper (seven tweetorials), animated visuals or GIFs (nine tweetorials), or memes (one tweetorial). For instance, one of the authors uses pictures like the one in [Figure 2](#) to present her paper on “T cell response to commensals in the intestine of mouse and man”. GIFs were also a device used in some threads to capture the audience’s attention, with one thread including eight GIFs. Many of these GIFs are used to express attitude or evaluate claims, with superimposed texts such as: “a bold claim”, “it’s too much”, “Nooooooooo!!!”. Others are related to the topic or the content of the tweet or function as signposting ([Figure 3](#)). Some of these GIFs make reference to popular culture (see [Figure 4](#), which is based on a character in Harry Potter films), which helps to

create connections with readers and engage them affectively (see Villares, 2023, for a similar use of GIFs in Twitter Conference Presentations). The only meme in the corpus also contributes to construing solidarity by creating a humorous effect (see the “Arthur fist” meme in Figure 5).



Figure 2. Pictures to engage the audience (Tweeetorial 47).



Figure 3. GIFs as signposting (Tweeetorial 24).

Five threads also included pictures of the authors. These were either portrait pictures of authors smiling at the camera, which helps to represent them as friendly and approachable (two occurrences), or more informal pictures of the authors in non-scholarly settings (three occurrences) (e.g. with their children, with other researchers), which helps to represent them as normal people with a life outside academia, like the researchers reading the tweetorial.

Different types of emoji were also used as engaging devices (see Luzón, 2023a). These include celebration emoji, used in combination with verbal expressions of positive feelings for the paper's publication (🎉, 🥳, 🎊, 🎈), iconic representations of facial expressions (😄, 😊, 😁, 😂, 😃, 😆, 😇, 😄, 😁, 😂, 😃, 😆, 😇, 😄, 😁, 😂, 😃, 😆, 😇) (see example 6), referential emoji (♂, ♀, 🐦, 🐶), number emoji (10), pointing emoji (👉, 👈, 📌)–frequent in the lede to direct the reader to the hyperlink to the publication, and other attention-getting emoji (🔥, 📌, 🚩, 🌟, 🌠, 🌈, 🌟). Attention-getting emoji were particularly frequent to realize the first move of the lede: *Announcing the publication* (e.g. “A new milestone 🎉: my 30th publication!”, “💡💡 New Publication Alert!! 💡💡”).

- (6) This single m6A site was the only one identified in BC cell lines that express endogenous HOTAIR 😊. (...) The mutation totally prevented HOTAIR-mediated cell growth and invasion 🙌 (Tweetorial 8)

Capitals and exclamation marks (sometimes more than one) were often used for emphasis. Capitals (15 tweetorials) were mainly used with grammar words such as BUT, MORE, ONLY, A LOT, DOES NOT (see example 7 below) but also with content words, especially in the lede (“NEW PREPRINT”, “🔥 ATTENTION #TRIALISTS”). Exclamation marks were used pervasively in these threads for emphasis and/or for adding attitudinal meaning, in particular when presenting (surprising) results or when addressing readers (example 8).



Figure 4. Reference to popular culture in GIFs (Tweetorial 26).

- (7) It shows clearly NPM1c DOES NOT have the ability to initiate de novo transcription (Tweetorial 49)
- (8) a. Of interest to all those who love Diagnostic Reasoning!!! (Tweetorial 19)
b. Subgroup analysis for sex did not change these results! (Tweetorial 45)

Directives—in the form of imperatives (29 tweetorials)—are often physical directives, which seek to move the audience into action and create a sense of immediacy. They are used to invite the reader to do something, such as reading the tweetorial or the paper, contacting the author, or sharing the paper so as to increase its visibility and reach (e.g. “feel free to reach out”, “check out”, “come along for a tweetorial”, “read the methods”, “feel free to share”); to direct the readers to visuals in the tweet (“look at this beautiful PLA assay”); and to provide suggestions or advice on research/clinical practice (“If you do have to offer approvals from single arm trial, please base it on CR rates”).

Finally, asides, identified through parentheses, were also used to connect with readers, to acknowledge the reader by turning to him/her in mid-flow “offering a remark that is largely dialogic and interpersonal” to show that writer and reader share concerns and understandings (Hyland and Jiang, 2016: 37) (see example 9).

- (9) Topical dapsona should be avoided in the last month of pregnancy (...) (not a particularly effective treatment anyway - I personally don't use even outside of pregnancy) (Tweeterial 4)



Figure 5. Meme to create solidarity and humour (Tweeterial 27).

4.2.4. Strategies to facilitate the processing of information

Table 6

Strategies to facilitate understanding.

Strategies	% of tweeterials
• Signposting	70%
• Clarification in parentheses, sentence definitions, and appositions	40%
• Explanatory visuals	22%
• Question-and-answer narrative	8%
• Examples	6%

Some strategies help to make the content more digestible for rapid on-the-go consumption, and this processing ease probably contributes to sustaining attention (see Berger et al., 2023) (see Table 6). One such strategy, also used in other types of tweeterials (Gero et al., 2021), is signposting or labels of the content as the first element of the tweet (e.g. “Aim”, “Methods”, “Discussion”, “Clinical implications”, “Key findings”, “A little background before we dive into ...”, “The conclusions are below”, “First, the bad news”, “Context:”, “Further ... Finally ... In summary”). Signposting can also be realized through visual elements, such as emoji, particularly number emoji.

Structuring the presentation of results as a question-and-answer narrative also contributes to creating an easier to digest format. For instance, in tweeterial 27 some of the tweets consist of a question, the answer and a visual providing evidence (see example 10).

- (10) **Tweet 7:** So why do cells need chemo Rx to be responsive to IFN γ ? We did ATAC seq on tumors and tissue culture cells and the loci that gain accessibility after chemo were overwhelmingly at Irf motifs [+ figure from paper]
Tweet 8: So, what does this chromatin accessibility mean? It means that IRF1 transcription factor can now access loci of genes like PD-L1 and Oasl2 [+ figure from paper]

Another strategy which contributes to facilitating understanding and quick processing is the use of information in parenthesis to clarify some points, to provide a brief synthesis of fragments of the article which may help to follow the argument in the thread (example 11a), or to provide an explanation/synonym of a technical term (example 11b). Definitions

and explanations of specialized terms also occur, although less frequently (in seven threads), as sentence definitions (i.e. “X is ...”) or as appositions (see example 12).

- (11) a. We sequenced yeast from all 5 replicate populations and the results make sense: we see lots of mutations in genes that cause cell elongation (cell cycle and filamentous growth) and budding (most appear to increase bud scar size, strengthening cell–cell connections) (Tweeterial 15)
- b. We assessed whether age, sex and number of medical conditions was associated with attrition (dropout) from these trials (Tweeterial 30)
- (12) Coprococcus, a bacterium previously found to be linked to iron deficiency, was also associated with hemoglobin levels, a blood component that also needs iron (Tweeterial 39)

The fact that this strategy is sometimes used to clarify specialized concepts suggests that at least some of these tweeterials are not written exclusively for experts in the discipline, but also for a broader semi-expert audience, probably including researchers in related disciplines and/or practitioners. It should be noted that the papers that these tweeterials promote may also be of interest to researchers in disciplines other than medicine and, indeed, a few of them are the result of interdisciplinary research (e.g. collaboration between researchers in medicine and computer science).

Tweets also embed what Gero et al. (2021) refer to as “explanatory visuals” (i.e. figures and diagrams used for explanatory purposes), although they are less frequent than figures providing evidence. These visuals are used to represent the method (Figure 6a) or help readers understand processes and concepts (see Figure 6b). Figures occurring in the paper may be modified or simplified, as is the case of Figure 6a, to facilitate quick processing. In some cases, moving images (in the form of GIFs), not occurring in the paper or occurring in the paper in the form of non-moving images, are used for explanatory purposes, thus harnessing the multimodal affordances of the genre. Figure 6b illustrates how the authors resort to moving images to show how the cells reproduce.

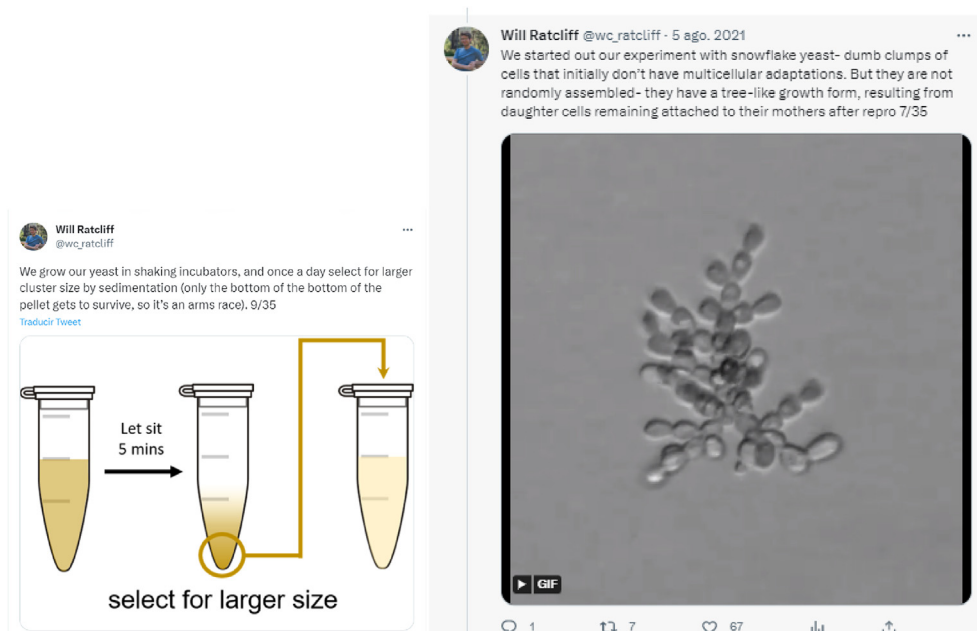


Figure 6. (a and b) Explanatory visuals (Tweeterial 15).

4.2.5. Strategies to deal with space constraints

Table 7
Strategies to deal with space constraints.

Strategies	% of tweeterials
• Emoji and punctuation	46%
• Abbreviations	42%
• Parentheses	28%
• Visual quotations	26%

Although the use of threads makes it possible to present a paper in some detail, authors use some strategies to overcome the length limitations of tweets and include more information in a single tweet (see Table 7). These include the use of emoji

and punctuation (e.g. ↑ meaning “increase”, + or & meaning “and”, w meaning “with” or d/t meaning “due to”), the omission of grammatical words (see example 13), the use of abbreviations (e.g. “exp’ts”, “sec” “seq analysis”, “we searched lit.”, “34yrs + 11 mos old”, “open ?s”. “obvi”, “vax”, “docs”, “pts”, “chemo”) and acronyms, which are difficult to understand by non-experts. Some of the abbreviations are keywords in the tweetorial corpus (e.g. vax, chemo, pts), which suggests that this is an important feature of this type of texts. Parentheses are often used to introduce the acronym which will be used throughout the tweetorial, thus reducing the number of characters that would be needed to write the full term (see example 14).

- (13) Cardiac ischemia after + ECG—EBM 2–11%, median answer 70% (Tweetorial 22)
 (14) AID catalyzes somatic hypermutation (SHM, leading to affinity maturation), but also mediates calss switch recombination (CSR, affecting Fc effector functions). So long germinal center reaction = ↑ SHM but also ↑ CSR? (Tweetorial 25)

One particularly useful strategy to overcome space limitations is the use of visual quotations (or, as Rowley-Jolivet (2002) calls them, “scriptural visuals”) taken from the text, i.e. picture-like quotations from the original article. As has been pointed out, threads include a high number of tables and figures from the paper, which enable the authors to include a lot of information (summarized in the table or figure), without using a single character. In addition, some threads (n = 11) made use of large boxed written quotations from the paper (see Figure 7). By pasting a photographed fragment of text (e.g. the abstract, a definition, or any fragment that the authors consider particularly important), authors quoted relevant information from the paper without modifying it and without using tweet characters. In addition to helping tweeters overcome space limitations, these long textual quotations serve the purpose of providing readers access to the key information from non-open access publications.

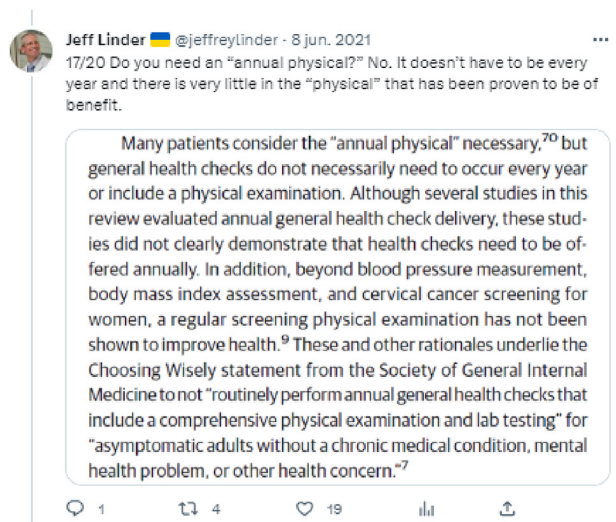


Figure 7. Tweet with a visual quotation in the form of scriptural visual (Tweetorial 20).

5. Discussion and conclusions

In the context of the attention economy, where the overabundance of academic publications compels scholars to compete for the readers' limited attention (Hyland, 2023), publication-promoting tweetorials are being used by researchers to recontextualize the contents of publications or preprints in a way that attention is attracted to them. The main aim of this study was to determine the recontextualization strategies employed by authors of publication-promoting tweetorials to achieve the promotional attention-getting purpose of the genre and to explore the influence of the medium on how discourse is recontextualized. The study has shown that when recontextualizing the RA into tweetorials, researchers seek to make themselves visible as competent researchers and construe convincing arguments which persuade readers of the significance of the results and prompt them to access the full paper. In addition, they adapt the discourse of the RA to make the tweetorial eye-catching, to connect with the readers and engage them, thus attracting them to the tweetorial and keeping them hooked. Finally, they use strategies to facilitate the quick processing of information, thus encouraging continued reading, and to overcome space constraints.

Tweeters establish their own authority and credibility by resorting to features of the RA that help to construct the authors as competent members of the community, such as the use of technical language and acronyms, which reflects disciplinary knowledge, or references to their social connections within the community. Nevertheless, they also draw on more self-

promotional features, such as referring to their research activity, or claiming ownership of the research with the pervasive use of first person pronouns, which contributes to drawing attention to their role in the research (see [Hyland, 2023](#)). The frequent use of strategies to make claims and arguments convincing suggests that tweeters conceive this genre not just as a summary of the RA, but as a persuasive text. The most frequent device to provide evidence is visuals from the paper, thus taking advantage of the multimodal nature of the genre and of the persuasive affordances of the visual mode. Additionally, these visuals may function as clickbaits to entice the reader to access the publication for more detailed description or interpretation of the data in the visual.

Stimulating the audience's interest is effected by a high variety of strategies, some of which are also frequent in informational tweetorials ([Gero et al., 2021](#); [Tardy, 2023](#)). As [Tardy \(2023\)](#) points out, the contextual features of microblogs (i.e. they are crowded textual spaces for on-the-go consumption of information, where readers access new content by scrolling and skimming and by clicking on what attracts their attention) make the use of engagement strategies particularly important. Tweeters engage the readers through elements intended to grab their attention while scrolling (e.g. visuals, emoji, graphical emphasis), but also by creating dialogic involvement, immediacy and intimacy with the audience. Tweeters seek to involve the audience, hook their interest, and draw them in the discourse through questions, references to the readers, directives and aside comments. They also seek to create solidarity and intimacy by using features of informal conversational discourse, expressions of feeling, or by including references to their academic life and experiences, resorting to a narrative style which may make the audience want to read more. Highlighting the novelty, importance or unexpectedness of the results through hyping and impactful language is also a powerful persuasive strategy. Some of these features are shared with other digital genres ([Luzón, 2013](#)) and particularly with other summary genres where audience engagement is key, such as the 3MT presentation ([Carter-Thomas and Rowley-Jolivet, 2020](#)). In addition, features unique to social media, such as @mentions, GIFs, hashtags, or emoji, are frequently used as attention-getting devices in this genre. Engagement strategies are particularly frequent in the first tweet of the tweetorial, where emoji, expressions of feeling, visuals, reference to the readers, questions and directives are often used to attract the reader to the tweet and persuade them to read the tweetorial and click on the hyperlink to the full-text publication.

There is a relatively low frequency of strategies to facilitate the understanding of content and enhance comprehension, which suggests that in general these tweetorial are not targeted at a lay audience. Strategies such as definitions, denominations, examples, or analogies, used in popular science genres (see [Calsamiglia and Van Dijk, 2004](#); [Gotti, 2014](#)) and in other parascientific genres—such as science blogs ([Luzón, 2013](#)), 3MT presentations ([Carter-Thomas and Rowley-Jolivet, 2020](#)) or informational tweetorials ([Gero et al., 2021](#))—are relatively scarce (or do not occur at all) when compared with other types of strategies. The most frequent strategies to facilitate understanding are not those intended to bridge knowledge asymmetries with the potential readers but strategies that facilitate the on-the-go processing of information, thus enticing the audience to continue reading. This is the case of signposting, a strategy that also occurred in 70% of the informational tweetorials analyzed by [Gero et al. \(2021\)](#), or question-and-answer narratives.

Finally, since this is a genre with character-space limitations, some strategies aim to save space while at the same time conveying all the key information and achieving the promotional purpose of the genre. These are, not unexpectedly, strategies also used in the composition of other Twitter-based genres, such as Twitter Conference Presentations ([Villares, 2023](#)). A highly effective strategy to save space is the incorporation of visuals from the research article, either figures and tables or visual quotations. These strategies also have an attentional function, since keeping the tweets short helps to maintain readers' attention ([Breu, 2020](#)).

In relation to RQ2 of the study, the findings suggest that the recontextualization strategies employed in publication-promoting tweetorials are highly influenced by the medium affordances and constraints and the semiotic resources available to tweeters. While some of these strategies are also frequent when recontextualizing the discourse of the RA into other genres, other strategies seem to be related to the social nature of the genre. This is the case, for instance, of @mentions, emoji, or hashtags, all of them Twitter features which serve to create connections and enact affiliation, providing new ways of communicating interpersonal meaning, and to make the tweetorial visible by specific users. Other strategies are influenced by contextual constraints. For instance, visuals help to attract the readers' attention when they are scrolling, signposting facilitates on-the-go processing, and abbreviations and scriptural visuals help to save characters.

To conclude, the recontextualization strategies used when composing these tweetorials are determined by the social action of the genre (i.e. to attract the attention of an expert and semi-expert audience and promote the research), the audience, the medium, and the genre contextual features. In the digital era, where attention is a primary object of competition for scholars ([Hyland, 2023](#)), promoting a study involves first making it visible and noticeable, which calls for the use of engagement and attention-getting devices, and then “establishing reasons to read it” ([Hyland, 2023](#)), which calls for strategies which help to convey researchers' authority, the novelty and significance of the study, and the reliability of the findings. By using the different types of recontextualization strategies identified in the current study, tweeters first seek to draw attention to these tweetorials, in the information-saturated space of Twitter, and sustain this attention (e.g. by using attention-getting and interest-sparking elements or by creating solidarity, immediacy and dialogic involvement); and then to strengthen persuasiveness by giving the readers reasons to access the full-text publication (e.g. by creating a credible persona or by hyping the results). Audience also plays an important role in shaping these strategies. These tweetorials seem to be intended for expert and semi-expert audiences (e.g. healthcare practitioners, novice researchers, researchers in related disciplines) (see [Luzón, 2023a](#)), who are able to understand most technical concepts, and in most cases the use of strategies to bridge the knowledge gap between writers and readers does not seem to be necessary. In these tweetorials, persuasiveness is

achieved by combining the display of disciplinary expertise with informal and personal language, including the vernacular of social media (e.g. emoji). This informal and personal discourse may help to attract a broader and less predictable audience than that of RAs. At the same time, it contributes to creating a sense of community, affiliation, and solidarity, to constructing new social relations with the audience (i.e. “social repositioning”) and to stimulating interest.

Since scholars are increasingly required to promote their research and make it noticeable for readers with various degrees of expertise, they need to be familiar with genres that allow them to do so and to develop the skills to compose these genres. Publication-promoting tweetorials have emerged as a genre that enables medical researchers to bring their research to the attention of a diverse audience, including practitioners, and researchers in related disciplines. This study has shown the connection between the attention economy in the academic context and the rhetorical choices made by scholars when recontextualizing their research in publication-promoting tweetorials, and has provided insights into academic persuasion and attention gaining in Twitter. The findings of this study could be used to develop teaching materials to train medical scholars to recontextualize the content of their RAs into more promotional texts. Scholars can be trained to harness the affordances and features of social media to engage the readers and attract them to their research, and present their findings in a persuasive way.

Given the potential of Twitter for communicating and gaining attention for research findings, there is a need for more detailed and nuanced analysis of publication-promoting tweetorials. This study has focused on biomedical tweetorials and therefore the results cannot be generalized. Further research might analyze tweetorials in other disciplines, to establish whether there are discipline-related differences. In addition, in future research, the analysis of recontextualization strategies conducted in this study could be complemented with discourse-based semi-structured interviews with the researchers composing the tweetorials in order to get greater insight into their rhetorical choices.

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CRediT authorship contribution statement

María José Luzón: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Appendix A. Supplementary data

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María-José Luzón is a Senior Lecturer (PhD) at the University of Zaragoza. She has published extensively on corpus linguistics, English for Academic Purposes, academic writing by multilingual scholars, and digital academic genres. Her current research focuses on the analysis of digital genres for science communication and dissemination. Recent books include *Digital genres in academic knowledge production and communication: Perspectives and practices* (Multilingual Matters, 2022) and *Genre networks. Intersemiotic relations in digital science communication* (Routledge, 2023).